AVENGER® SERIES

UNDERCOUNTER DISHMACHINES

Jackson®
Warewashing Systems

INSTALLATION, OPERATION & SERVICE MANUAL

FOR JACKSON MODEL(S):

AVENGER HT
AVENGER LT

ENERGY STAR

AVENGER HT/LT Technical Manual • Revision U • P/N 07610-003-34-01 • Issued 05-02-2007 • Revised 09-18-2015

MANUFACTURER'S WARRANTY

ONE YEAR LIMITED PARTS & LABOR WARRANTY

ALL NEW JACKSON DISHWASHERS ARE WARRANTED TO THE ORIGINAL PURCHASER TO BE FREE FROM DEFECTS IN MATERIAL OR WORKMANSHIP, UNDER NORMAL USE AND OPERATION FOR A PERIOD OF (1) ONE YEAR FROM DATE OF PURCHASE, BUT IN NO EVENT TO EXCEED (18) EIGHTEEN MONTHS FROM DATE OF SHIPMENT FROM THE FACTORY.

Jackson WWS agrees under this warranty to repair or replace, at its discretion, any original part which fails under normal use due to faulty material or workmanship during the warranty period, providing the equipment has been unaltered, and has been properly installed, maintained and operated in accordance with applicable factory instruction manual furnished with the machine and failure is reported to the authorized service agency within the warranty period. This includes the use of factory specified genuine replacement parts, purchased directly from a Jackson authorized parts distributor or service agency. Use of generic replacement parts may create a hazard and void warranty certification.

The labor to repair or replace such failed part will be paid by Jackson WWS, within the continental United States, Hawaii and Canada, during the warranty period provided a Jackson WWS authorized service agency, or those having prior authorization from the factory, performs the service. Any repair work by persons other than Jackson WWS authorized service agency is the sole responsibility of the customer. Labor coverage is limited to regular hourly rates; overtime premiums and emergency service charges will not be paid by Jackson WWS.

Accessory components not installed by the factory carry a (1) one year parts warranty only. Accessory components such as table limit switches, pre-rinse units, etc. that are shipped with the unit and installed at the site are included. Labor to repair or replace these components is not covered by Jackson WWS.

This warranty is void if failure is a direct result from shipping, handling, fire, water, accident, misuse, acts of God, attempted repair by authorized persons, improper installation, if serial number has been removed or altered, or if unit is used for purpose other than originally intended.

TRAVEL LIMITATIONS

Jackson WWS limits warranty travel time to (2) two hours and mileage to (100) one hundred miles. Jackson WWS will not pay for travel time and mileage that exceeds this, or any fees such as those for air or boat travel without prior authorization.

WARRANTY REGISTRATION

To register your product go to www.jacksonwws.com or call 1-888-800-5672. Failure to register your product will void the warranty.

REPLACEMENT PARTS WARRANTY

Jackson replacement parts are warranted for a period of 90 days from date of installation or 180 days from the date of shipment from the factory, whichever occurs first.

PRODUCT CHANGES AND UPDATES

Jackson WWS reserves the right to make changes in design and specification of any equipment as engineering or necessity requires.

THIS IS THE ENTIRE AND ONLY WARRANTY OF JACKSON WWS. JACKSON'S LIABILITY ON ANY CLAIM OF ANY KIND, INCLUDING NEGLIGENCE, WITH RESPECT TO THE GOODS OR SERVICES COVERED HEREUNDER, SHALL IN NO CASE EXCEED THE PRICE OF THE GOODS OR SERVICES OR PART THEREOF WHICH GIVES RISE TO THE CLAIM.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING FOR FITNESS OR MERCHANTABILITY, THAT ARE NOT SET FORTH HEREIN, OR THAT EXTEND BEYOND THE DURATION HEREOF. UNDER NO CIRCUMSTANCES WILL JACKSON WWS BE LIABLE FOR ANY LOSS OR DAMAGE, DIRECT OR CONSEQUENTIAL, OR FOR THE DAMAGES IN THE NATURE OF PENALTIES, ARISING OUT OF THE USE OR INABILITY TO USE ANY OF ITS PRODUCTS.

ITEMS NOT COVERED

THIS WARRANTY DOES NOT COVER CLEANING OR DELIMING OF THE UNIT OR ANY COMPONENT SUCH AS, BUT NOT LIMITED TO, WASH ARMS, RINSE ARMS OR STRAINERS AT ANYTIME. NOR DOES IT COVER ADJUSTMENTS SUCH AS, BUT NOT LIMITED TO, TIMER CAMS, THERMOSTATS OR DOORS, BEYOND 30 DAYS FROM THE DATE OF INSTALLATION. IN ADDITION, THE WARRANTY WILL ONLY COVER REPLACEMENT WEAR ITEMS SUCH AS CURTAINS, DRAIN BALLS, DOOR GUIDES OR GASKETS DURING THE FIRST 30 DAYS AFTER INSTALLATION. ALSO, NOT COVERED ARE CONDITIONS CAUSED BY THE USE OF INCORRECT (NON-COMMERICAL) GRADE DETERGENTS, INCORRECT WATER TEMPERATURE OR PRESSURE, OR HARD WATER CONDITIONS.

REVISION HISTORY

Revision Letter	Revision Date	Made By	Applicable ECNs	Details
A	05-02-07	MAW	N/A	Release to Production
B	05-22-07	JDD	7920	Changed Schematics to new color scheme
29	08-06-07	MAW	7930	Updated Avenger HT Incoming plumbing supply
C	10-07-07	MAW	PROCESS	Added Avenger LTH designation. Added 480 Volt Avenger HT
	11-20-07	MAW	PROCESS	Corrected 480 Volt Avenger HT Components
47 & 48	1-31-08	MAW	PROCESS	Updated Installation instructions. Replaced LTH with LT designation. Added vacuum switch assembly
D	9-18-09	ARL	090902-1157-CW 090902-1201-CW	Updated Plumbing to show soldered pipe and new valve
E	02-08-10	RLC	8151	Added fused universal timer as alternate in assemblies
F	05-05-10	RLC	8157	Changed Squeeze tubes in HT Peripump Assembly
G	06-18-10	RLC	QOF 385	Updated LTH schematic
H	04-13-11	TC/LN	DEV 11-14	Converted to publisher format, made LT Heater an option..
I	09-12-11	CW	QOF-386	Adjusted timer programming chart
J	02-09-12	RC	8215	Removed Bottom Panel from pg 50
K	04-18-12	RC	QOF-386	Added Energy Star logo
L	06-07-12	RC	QOF-386	Added Rinse Gasket to HT Plumbing Assembly (pg 38)
M	03-11-13	RC	QOF NDB-219	Update Jackson logo, and company name.
N	05-17-13	RC	QOF-386	Update wash/rinse tank capacities
O	7-24-13	RC	QOF-386	Updated amperage charts and corrected Table Heading
P	02-10-14	MHH	QOF-386	Updated manufacturer warranty. Removed “Stop” page. Corrected P/N on Ball Valve assy, pg. 40
Q	05-23-14	MHH	8287	New bearing & part # on rinse arm assembly, pg. 43.
R	07-02-14	RC	QOF-NDB-266	Remove ventilation requirement information.
S	10-13-14	KAP	QOF-386	Changed part number on pg. 27 for 10 wire harness to 05999-003-87-88.
T	08-13-15	KAP	QOF-386	Updated new revision of 208-230 Volt Schematic on pg. 56
U	09-18-15	KAP	N/A	Updated pressure regulator info on pg. 6 & 18. Replaced bottom panel P/N 05700-003-37-87 on pg. 49 & 50 with bottom straps P/N 05700-003-92-20. Updated door assembly on pg. 45 & 46.

Jackson®

Warewashing Systems

AVENGER HT

High temperature, hot water sanitizing, with a booster tank detergent & rinse aid chemical feeder pumps.

AVENGER LT

Low temperature, chemical sanitizing, with detergent, rinse aid & sanitizer chemical feeder pumps.

Model: _____

Serial No.: _____

Installation Date: _____

Service Rep. Name: _____

Phone Number: _____

Jackson WWS, Inc. provides technical support for all of the dishmachines detailed in this manual. We strongly recommend that you refer to this manual before making a call to our technical support staff. Please have this manual with you when you call so that our staff can refer you, if necessary, to the proper page. Technical support is not available on holidays. Contact technical support toll free at 1-888-800-5672.

Technical support is available for service personnel only.

TABLE OF CONTENTS

SPECIFICATIONS

Avenger HT & LT Dimensions 1
Operating Parameters 3
Electrical Requirements 4

INSTRUCTIONS

Installation Instructions 5
Operating Instructions 13

MAINTENANCE

Preventative Maintenance 16

TROUBLE SHOOTING

Common Problems 18

PARTS

Control Weldment Assemblies 20
Avenger HT 480V Control Panel Assembly 22
Control Panel Assembly/Kick Panel Weldment Avenger HT 23
Control Panel Assembly/Kick Panel Weldment Avenger LT 24
Terminal Block Box Assembly 25
Avenger HT Chemical Feeder Pump Assembly 26
Avenger HT Complete Peripump Assembly 27
Avenger LT Chemical Feeder Pump Assembly 28
Avenger LT Complete Peripump Assembly 29
Chemical Feeder Pump Components 30
Avenger HT Plumbing Assemblies 31
Avenger LT Plumbing Assemblies 32
Rinse Solenoid Valve & Vacuum Breaker Repair Parts Kit/Water Hammer Arrestor Kit Option 35
Wash Motor/Drain Plumbing/Avenger LT Wash Manifold Assembly 37
Motor & Pump Assembly 39
Rinse Arm & Wash Arm Assemblies 41
Avenger HT Thermostat & Rinse Tank Assembly 43
Avenger LT Optional Thermostat & Heater Components 44
Door Assembly 45
Miscellaneous Door Components 47
Frame & Panel Components 49
Miscellaneous Parts 51
Stands & Components 52
HTS-11 (Scale Prevention & Corrosion Control Device) 53

PARTS (continued)

Go Box Kit 54
Vacuum Switch Assembly 55
Vacuum Switch Assembly Installation 56

SCHEMATICS

Avenger HT 208-230 Volt 60 Hertz Single Phase 57
Avenger HT 480 Volt 60 Hertz Three Phase 58
Avenger LT 115 Volt 60 Hertz Single Phase 59

AVENGER HT MACHINE DIMENSIONS

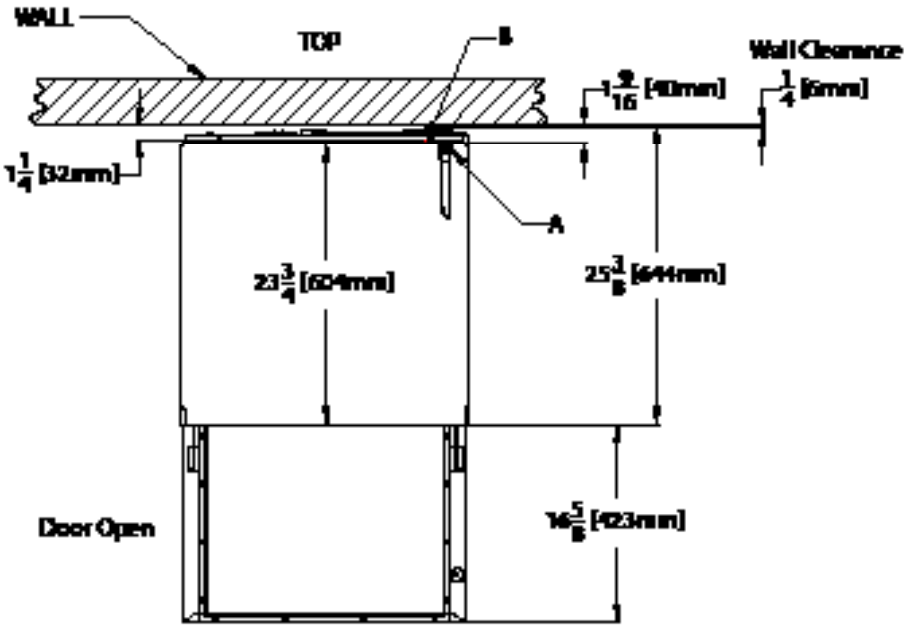
LEGEND:

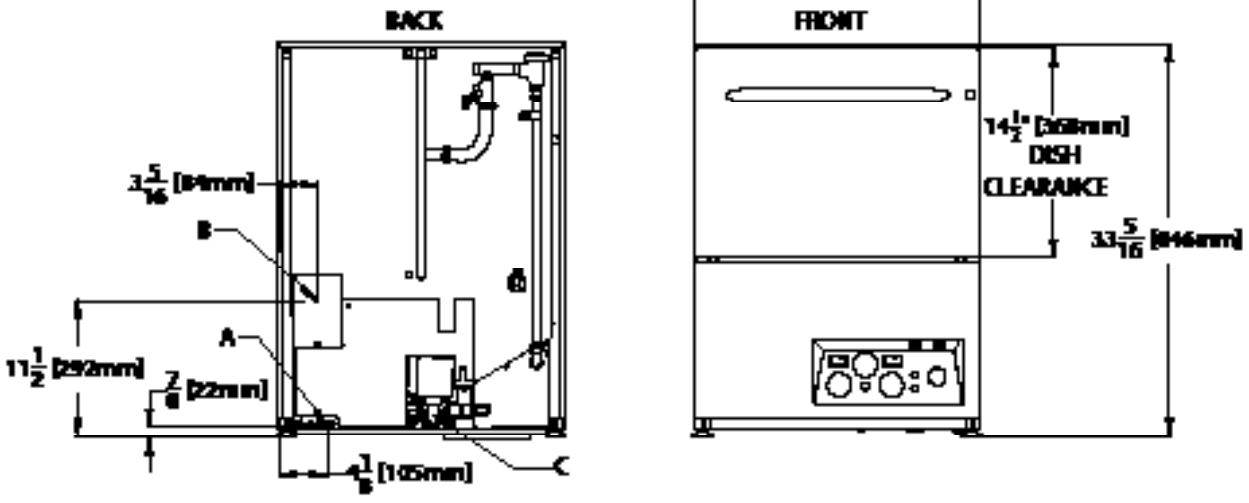
A - Water Inlet - 1/2" Female Pipe Thread, 21/2" AFF (Connect to a true 1/2" ID water line)

B - Electrical Connection

C - Drain Connection - 10' coiled drain hose. Shipped inside machine. Must be installed no more than 24" AFF.

All dimensions from floor can be increased 1" with adjustable feet supplied.





*All dimensions are for reference only and are subject to change without notice.

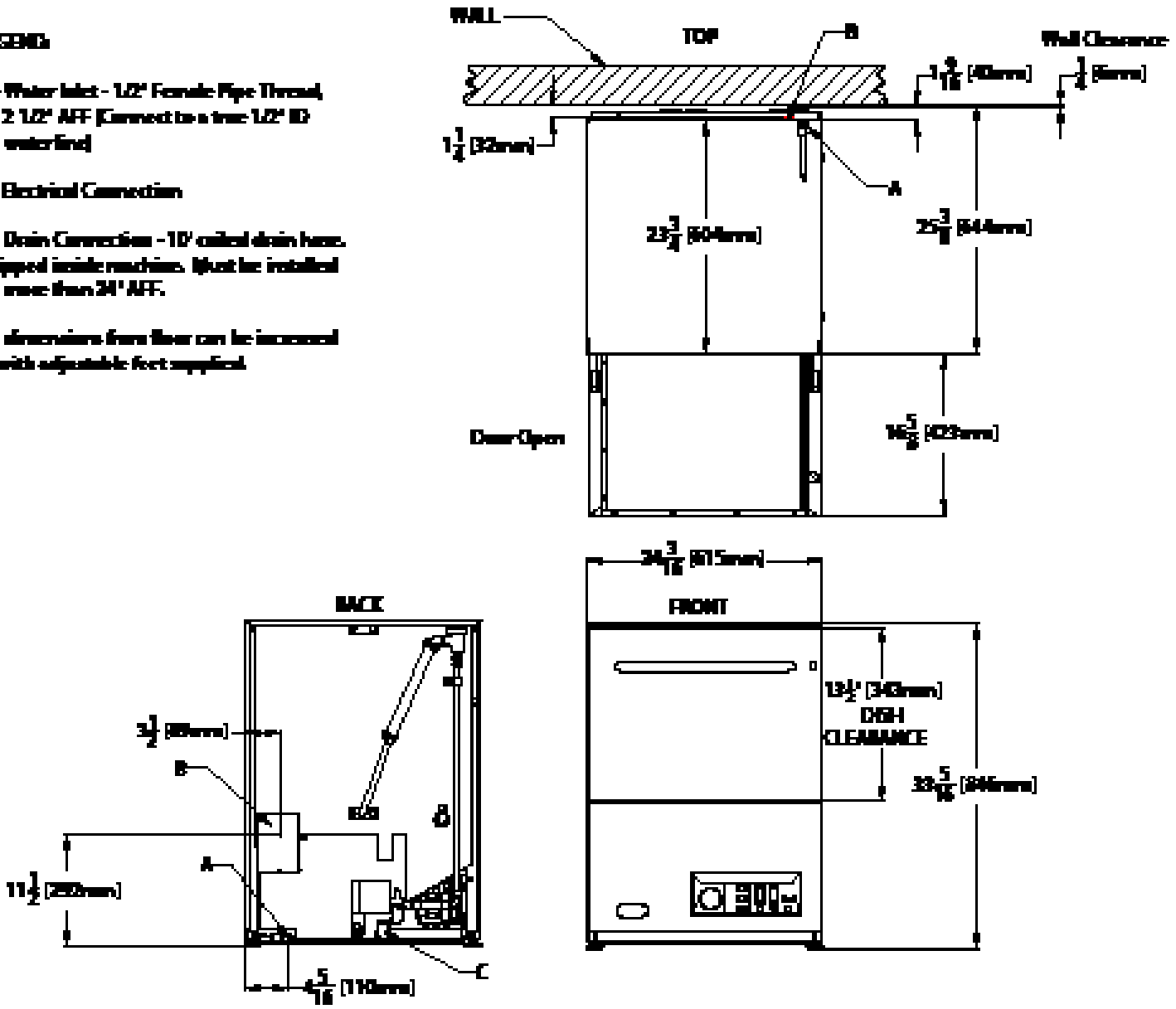
LEGEND:

A - Water Inlet - 1/2" Female Pipe Thread, 2 1/2" AFF (Connect to a true 1/2" ID water line)

B - Electrical Connection

C - Drain Connection - 1" coiled drain hose. Shipped inside machine. Must be installed no more than 24" AFF.

All dimensions from floor can be increased 1" with adjustable feet supplied.



*All dimensions are for reference only and are subject to change without notice.

OPERATING PARAMETERS

Model Designation:	AVENGER HT	AVENGER LT
Operating Capacity:		
Racks per Hour	24	24
Dishes per Hour	600	600
Glasses per Hour	834	864
Tank Capacity (Gallons):		
Wash Tank	1.1	1.1
Rinse Tank	3.0	1.1
Electrical Loads (as applicable):		
Wash Motor HP	0.75	0.75
Rinse Heater KW	8.2	N/A

NOTE: Always refer to the machine data plate for specific electrical and water requirements. The material provided on this page is for reference only and is subject to change without notice.

HOT WATER SANITIZING Water Temperatures (Fahrenheit):		
Minimum Wash Temperature	150	N/A
Minimum Rinse Temperature	180	N/A
Minimum Incoming Water Temperature	110	N/A

CHEMICAL SANITIZING Water Temperatures (Fahrenheit):		
Minimum Wash Temperature	N/A	120
Minimum Rinse Temperature	N/A	120
Incoming Water Temperature	N/A	120

Other Water Requirements:		
Water Flow Pressure (PSIG)	20	20
Flow Rate Minimum (GPM)	0.44	0.48
Water Line Size (NPT)	1/2"	1.2"
Drain Line Size (NPT)	1-3/8"	1-3/8"
Minimum Chlorine Required (PPM)	N/A	50

NOTE 1: MCA (Minimum Circuit Ampacity) = 125% x Largest Motor +FLA of all other motors + all other loads.

NOTE 2: MOP (Maximum Over-current Protective Device) = 225% x Largest Motor + FLA of all other motors + all other loads.

All electrical ratings provided in this manual are for reference only. Always refer to the machine data plate to get exact electrical information for this machine. All electrical work performed on machines should be done in accordance with applicable local, state, territorial and national codes. Work should only be performed by qualified electricians and authorized service agents. A list of authorized service agencies is located in the back of this manual.

Note that all electrical wiring used in the AVENGER series of machines must be rated, at a minimum, for 100°C (212°F). Furthermore, use copper conductors only.

Where applicable, heating element amperage draws have been adjusted for the assumed input voltage. Jackson assumes incoming voltages will be either 208 or 230 volts. Some heating elements used in the machines are rated for other voltages, such as 240 volts and 480 volts. Always verify the amperage draw of the machine in operation when sizing circuit protection.

If the dishmachine is equipped with the optional rinse heater, note the rinse heater may have its own electrical connection and therefore require a separate service. Amperage loads for motors and heaters are indicated on the machine data plate.

The electrical configurations of the AVENGER series of machines are as follows:

Available Electrical Characteristics:

- 115 volt, 60 Hz, single phase
- 230 volt, 60 Hz, single phase
- 208 volt, 60 Hz, single phase
- 460 volt, 60 Hz, three phase

Available Wash Tank Heaters:

- 8.2KW (standard for AVENGER HT)

AVENGER HT
Electrical Characteristics

VOLTS	115	208	230	480
PHASE	1	1	1	3
FREQ	60	60	60	60
WASH MOTOR AMPS	13.2A	6.6 A	6.6 A	1.3A
RINSE HEATER AMPS	N/A	32.2 A	35.7 A	12.0 A
FLA	13.2A	38.8 A	42.3 A	13.3A

AVENGER LT
Electrical Characteristics

VOLTS	115
PHASE	1
FREQ	60
WASH MOTOR AMPS	13.2 A
RINSE HEATER AMPS	N/A
FLA	13.2

VISUAL INSPECTION

DO NOT THROW AWAY CONTAINER IF DAMAGE IS EVIDENT

Before installing unit, check container and machine for damage. A damaged container may be an indication of damage to the machine. If there is any type of damage to both container and unit, do not throw away the container. The dishmachine has been inspected at the factory prior to shipping and is expected to arrive in new, undamaged condition. However, rough handling by carriers or others may result in damage to the unit while it is in transit. If such a situation occurs, do not return the unit to the manufacturer. Instead, contact the carrier and ask them to send a representative to the site to inspect the damage, and request that an inspection report be completed.

Contact the carrier within 48 hours of receiving the machine (to report possible freight damage) and the dealer from whom the unit was purchased.

UNPACKING THE MACHINE

The machine should be unboxed and removed from the pallet prior to installing. Open the front door and remove all of the materials from the inside. Once unpacked, verify there are no missing parts. If a part is missing, contact manufacturer immediately.

LEVEL THE DISHMACHINE

The dishmachine is designed to operate while level. This is important to prevent any damage to the machine during operation and to ensure the best results possible. The unit comes equipped with adjustable bullet feet which can be turned using a pair of pliers. Verify the unit is level from front to back and side to side before making any electrical or plumbing connections.

PLUMBING THE DISHMACHINE

A water hardness test must be performed.

All plumbing connections must be made to adhere to local, state, territorial and national codes. The installing plumber is responsible for ensuring the incoming water lines are flushed of debris prior to connecting to the machine. Note that chips and materials from cutting processes can become lodged in the solenoid valves and prevent them from opening or closing. Any valves that are found to be fouled or defective because of foreign matter left in the water line, and any subsequent water damage, are not the responsibility of the manufacturer.

A water hardness test must be performed to determine if the HTS-11 (scale prevention & corrosion control) needs to be installed. A hardness test kit can be found on the warning tag that is attached to the incoming plumbing connection on the back of the machine. If water hardness is higher than 5 GPG, the HTS-11 will need to be installed. Please contact manufacturer to purchase the HTS-11.

WATER SUPPLY CONNECTIONS: WATER HARDNESS GREATER THAN 5 GPG

If water hardness tests at greater than 5 GPG, install the HTS-11 into the water line (1/2" ID pipe size minimum) before the dishmachine's incoming water connection point using copper pipe. Observe proper inlet/outlet water directions. Flow directions are molded into the top of the head. It is recommended that a water shut-off valve be installed prior to installation of the HTS-11 to allow access for servicing. Plumb from the HTS-11 outlet to the incoming water connection point using copper pipe (or order the 1/2" ID flexible hose kit offered by manufacturer). The water supply must be capable of a minimum of 10 PSI "flow" pressure at the recommended temperature indicated on the data plate. See "Shock Absorber" section.

WATER SUPPLY CONNECTION: WATER HARDNESS OF 5 GPG OR LESS

If water hardness tests at 5 GPG or less, install the water supply line (1/2" ID pipe size minimum) to the dishmachine's incoming water connection point using copper pipe (or order the 1/2" ID flexible hose kit offered by manufacturer). It is recommended that a water shut-off valve be installed in the water line between the main supply and the machine to allow access for service. The water supply line must be capable of a minimum of 10 PSI "flow" pressure at the recommended temperature indicated on the data plate.

PRESSURE REGULATOR

Take care not to confuse static pressure with flow pressure.

The manufacturer has an optional water pressure regulator to accommodate areas where water pressure fluctuates or is higher than the recommended pressure. Take care not to confuse static pressure with flow pressure: Static pressure is line pressure in a "no flow" condition (all valves and services are closed). Flow pressure is the pressure in the fill line when the valve is opened during the cycle.

SHOCK ABSORBER

It is suggested that a shock absorber (not supplied) be installed on the incoming water line. This prevents water hammer (hydraulic shock)—induced by the solenoid valve as it operates—from causing damage to the equipment.

CONNECTING THE DRAIN LINE

The dishmachine has a pumped (pressure) drain capable of pumping waste water to a height of 24" above the floor to the kitchen's drain system. Each dishmachine is supplied with a ten foot long hose. This ships installed on the unit. When installed, it will extend from the rear side of the machine. There must be an air gap between the machine drain line and the floor sink or drain. If a grease trap is required by code, it should have a flow capacity of 12 GPM (Gallons Per Minute).

PLUMBING CHECK

Slowly turn on the water supply to the machine after installing the incoming fill line and the drain line. Check for any leaks and repair as required. All leaks must be repaired prior to placing the machine into operation.

ELECTRICAL POWER CONNECTIONS

DISCONNECT ELECTRICAL POWER SUPPLIES & TAG OUT IN ACCORDANCE WITH APPROPRIATE PROCEDURES & CODES AT THE DISCONNECT SWITCH TO INDICATE THE CIRCUIT IS BEING SERVICED.

Electrical and grounding conductors must comply with the applicable portions of the National Electric Code ANSI/NFPA 70 (latest edition) and/or other electrical codes.

The data plate is located at the left front side of the dishmachine. Refer to the data plate for machine operating requirements, machine voltage, total amperage & serial number.

Remove the back panel to install the incoming power lines. This will require removing the screw at the bottom of the back panel with a Phillips head screw driver. Remove the back panel and set aside. Install 3/4” conduit into the pre-punched holes in the back of the control box. Route power wires and connect to power block and grounding lug. Install the service wires (L1and L2) to the appropriate terminals as they are marked on the terminal block. Install the grounding wire into the lug provided. It is recommended that “DE-OX” or another similar anti-oxidation agent be used on all power connections.

VOLTAGE CHECK

Ensure that the power button is in the off position and apply power to dishmachine. Check the incoming power at the terminal block and ensure it corresponds with the voltage listed on the data plate. If not, contact a qualified service agency (listed at the end of this manual) to examine the problem. Do not run dishmachine if voltage is too high or too low. Shut off the service breaker and advise all proper personnel of the location of the breaker and any problems. Replace the control box cover and tighten down the screws.

SURROUNDING AREA

This is a commercial dishmachine and reaches temperatures that can exceed those generated by a residential machine. Therefore, any surrounding countertops, cabinets, flooring material & subfloor material must be designed and/or selected with these higher temperatures in mind.

Note: Any damage to surrounding area that is caused by heat and/or moisture to materials that are not recommended for higher temperatures will not be covered under warranty or by Jackson WWS, INC.

THERMOSTATS

The thermostats on your AVENGER unit have been set at the factory. They should only be adjusted by an authorized service agent.

CHEMICAL FEEDER EQUIPMENT (CONTINUED)

WARNING!
CHLORINE-BASED SANITIZERS CAN BE DETRIMENTAL TO THIS MACHINE IF THE CHEMICAL SOLUTION IS TOO STRONG. SEE A CHEMICAL PROFESSIONAL TO ENSURE THE DISPENSER IS SET UP CORRECTLY.

This equipment is not recommended for use with deionized water or other aggressive fluids. Use of deionized water or other aggressive fluids will result in corrosion and failure of materials and components and will void the manufacturer's warranty.
The bottom of the chemical container cannot be located any higher than 8” from the floor. If the unit is equipped with the 6” or 18” table stand, the highest position will respectively be 14” or 26” from the floor. It is important to remember that if you decide to operate the unit in chemical sanitizing mode, you must ensure an appropriate chlorine-based sanitizer is used in the final rinse line.

TO PREPARE CHEMICAL FEEDER PUMPS FOR OPERATION

The AVENGER HT dishmachine is supplied with detergent and rinse aid chemical feeder pumps.

The AVENGER LT dishmachine is supplied with detergent, rinse aid and sanitizer chemical feeder pumps.

Locate the open ends of the chemical tubes with the tube stiffeners and place each one in the appropriate container.

A. Red Tubing = Detergent B. Blue Tubing = Rinse Aid
C. White Tubing = Sanitizer

PRIMING CHEMICAL FEEDER PUMPS

WARNING: Some of the chemicals used in dishwashing may cause chemical burns if they come in contact with skin. Wear protective gear when handling these chemicals. If any skin comes in contact with these chemicals, immediately follow the instructions provided with the chemicals for treatment.

Chemical feeder pumps need priming when the machine is first installed or if the chemical lines have been removed and air is allowed to enter.

CAUTION! Water must be in the sump and wash tank prior to the dispensing of chemicals. Sanitizer in concentration is caustic and may cause damage without dilution.

1. Verify that the proper chemical tube stiffener inlet is in the proper container.
2. Use the prime switches located on the control panel at the bottom of the unit to prime each pump. The switches are clearly marked as to what chemical feeder pump they are assigned to.
3. To prime the pumps, hold the switch in the momentary position until chemical can be observed entering the pump.
4. Detergent is dispensed as required during the wash cycle by the timer. The amount of detergent may need to be increased or decreased depending upon water quality and type of detergent.
5. Rinse additive is dispensed as required into the final rinse. The amount of rinse additive may need to be adjusted depending upon water hardness & results.
6. Sanitizer (either chlorine or iodine) is dispensed into the final rinse. The amount of sanitizer may need to be adjusted depending on the concentration and type of sanitizer used.
7. Please refer to the next page for instruction on adjusting the chemical feeder pumps on the universal timer.

PROGRAMMING INSTRUCTIONS FOR CHEMICAL FEEDER PUMPS (INSTALLATION TECHNICIAN ONLY)

To access the programming mode, the machine must be ON and idle (between cycles).

On the timer board, press and hold both the MOVE and ENTER buttons on the timer board simultaneously for two seconds.

The PROGRAM (PGM) light and light A will illuminate.

NOTE: Once in the programming mode, the MOVE button is used to scroll between the programming categories and the ENTER button is used to select the category.

Press the MOVE button to move the solid light to the desired location of FILL, RINSE AID, DETERGENT, or SANITIZER. Please note that options A, B, C and D are not adjustable outputs.

Press the ENTER button for the chosen category. Now, the (PGM) light will illuminate along with lights corresponding to the time values for the chosen category. The ACCEPT light will blink.

The PROGRAM light will illuminate.

To change the value of a parameter, use the MOVE button to illuminate the light next to the time option (time is measured in seconds). In the time categories, each second in use will light up. To deselect the option, press ENTER and the light will go off, press ENTER again and it will illuminate. Once you have set your time catergory, press the MOVE button until the ACCEPT light illuminates and press ENTER. This will save the changed parameters.

Once you press the ENTER button when the ACCEPT light is blinking you will exit the programming mode. To change any other values, you will have to return to the programming mode. To revert back to a previous setting, you must return to that option and change the parameter back to the previous setting.

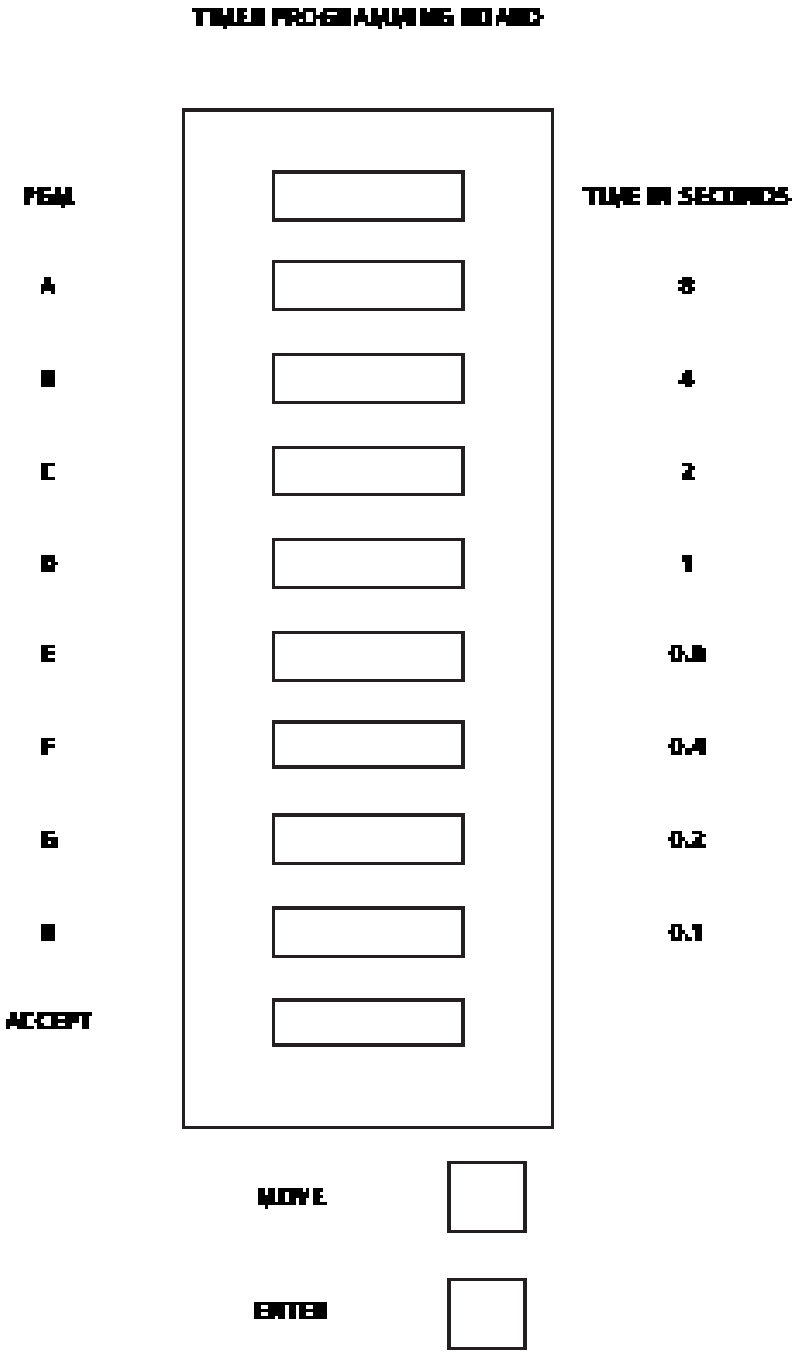
Once in the programming mode, if there have been no keypad inputs for approximately two minutes, the system will automatically exit out of the programming mode. Any changes to parameters will be saved when the programming mode is automatically exited.

The wash and drain cycles are not adjustable.

All time adjustments are in seconds. Refer to the chart on the following page for adjustable outputs.

PROGRAMMING INSTRUCTIONS FOR CHEMICAL FEEDER PUMPS (CONTINUED)

PGM	AVENGER HT	AVENGER LT
E	Not adjustable	Rinse Aid
F	Rinse	Fill
G	Detergent	Sanitizer
H	Rinse Aid	Detergent



DETERGENT CONTROL

Detergent usage and water hardness are two factors that contribute greatly to how efficiently your dish machine will operate. Using detergent in the proper amount can become, in time, a source of substantial savings. A qualified water treatment specialist can tell you what is needed for maximum efficiency from your detergent, but you should still know some basics so you'll understand what they are talking about.

First, you must understand that hard water greatly effects the performance of the dish machine. Water hardness is the amount of dissolved calcium and magnesium in the water supply. The more dissolved solids in the water, the greater the water hardness. Hard water works against detergent, thereby causing the amount of detergent required for washing to increase. As you use more detergent, your costs for operating the dish machine will increase and the results will decrease. The solids in hard water also may build-up as a scale on wash and rinse heaters, decreasing their ability to heat water. Water temperature is important in removing soil and sanitizing dishes. If the water cannot get hot enough, your results may not be satisfactory. This is why Jackson recommends that if you have installed the machine in an area with hard water, that you also install some type of water treatment equipment to help remove the dissolved solids from the water before it gets to the dish machine.

Second, hard water may have you adding drying agents to your operating cycle to prevent spotting, when the real problem is deposited solids on your ware. As the water evaporates off of the ware, the solids will be left behind to form the spotting and no amount of drying agent will prevent this. Again, using treated water will undoubtedly reduce the occurrences of this problem.

Third, treated water may not be suitable for use in other areas of your operation. For instance, coffee made with soft water may have an acid or bitter flavor. It may only be feasible to install a small treatment unit for the water going into the dish machine itself. Discuss this option with your qualified water treatment specialist.

Even after the water hardness problems have been solved, there still must be proper training of dish machine operators in how much detergent is to be used per cycle. Talk with your water treatment specialist and detergent vendor and come up with a complete training program for operators. Using too much detergent has as detrimental effects as using too little. The proper amount of detergent must be used for job. It is important to remember that certain menu items may require extra detergent by their nature and personnel need to be made aware of this. Experience in using the dish machine under a variety of conditions, along with good training in the operation of the machine, can go a long way in ensuring your dish machine operates as efficiently as possible.

Certain dish machine models require that chemicals be provided for proper operation and sanitization. Some models even require the installation of third-party chemical feeders to introduce those chemicals to the machine. Jackson does not recommend or endorse any brand name of chemicals or chemical dispensing equipment. Contact your local chemical distributor for questions concerning these subjects.

DETERGENT CONTROL (CONTINUED)

Some dish machines come equipped with integral solid detergent dispensers. These dispensers are designed to accommodate detergents in a certain sized container. If you have such a unit, remember to explain this to your chemical distributor upon first contacting them.

As explained before, water temperature is an important factor in ensuring that your dish machine functions properly. The data plate located on each unit details what the minimum temperatures must be for either the incoming water supply, the wash tank and the rinse tank, depending on what model of dish machine you have installed. These temperatures may also be followed by temperatures that Jackson recommends to ensure the highest performance from you dish machine. However, if the minimum requirements are not met, the chances are your dishes will not be clean or sanitized. Remember, a dish can look clean, but it may not be sanitized. Instruct your dish machine operators to observe the required temperatures and to report when they fall below the minimum allowed. A loss of temperature can indicate a much larger problem such as a failed heater or it could also indicate that the hot water heater for your operation is not up to capacity and a larger one may need to be installed.

There are several factors to consider when installing your dish machine to ensure that you get the best possible results from it and that it operates at peak efficiency for many years. Discuss your concerns with your local chemical distributor and water treatment specialist before there is a problem.

PREPARATION

Before proceeding with the start-up of the unit, verify the following:

1. Strainers are in place and clean.
2. Wash and rinse arms are screwed securely into place and end caps are tight.
3. Wash and rinse arms rotate freely.
4. Chemical levels for machine chemical feed pumps are correct.

POWER UP

To energize the unit, turn on the power at the service breaker. The voltage should have been previously verified as being correct. If not, the voltage must be verified before energizing the unit.

FILLING THE WASH TUB

For the initial fill, close the door and ensure that the MANUAL switch light is not on. Depress and hold the START CYCLE switch until the auto light comes on and then release the button. For the initial fill, run the machine through 3 cycles to fill the tub sump. The machine will run a partial cycle and fill to the bottom of the pan strainer. Open the door and verify that the water level is correct.

NOTE: For the Avenger HT: Ensure the orange/white wires at the heater contactor are connected properly. They have been purposely disconnected at the factory to avoid damage to the heater element when there is no water in the booster heater.

Hereafter, the water level is controlled by the timer that has been preset at the factory. Verify that there are no other leaks on the unit before proceeding any further. The wash sump must be completely filled before operating the wash pump to prevent damage to the component. Once the wash tub is filled, the unit is ready for operation.

The machine runs a complete cycle to drain and fill. If the machine is not allowed to drain, the water will build up inside the tub. After the initial fill, the rinse water for the current cycle will become the wash water for the next cycle.

WARE PREPARATION

Proper preparation of ware will help ensure good results and less re-washes. If not done properly, ware may not come out clean and the efficiency of the dish machine will be reduced. It is important to remember that a dish machine is not a garbage disposal and that simply throwing un scraped dishes into the machine simply defeats the purpose altogether of washing the ware. Scraps should be removed from ware prior to being loaded into a rack. Pre-rinsing and pre-soaking are good ideas, especially for silverware and casserole dishes. Place cups and glasses upside down in racks so that they do not hold water during the cycle. The dish machine is meant not only to clean, but to sanitize as well, to destroy all of the bacteria that could be harmful to human beings. In order to do this, ware must be properly prepared prior to being placed in the machine.

DAILY MACHINE PREPARATION

Refer to the section entitled “PREPARATION” at the top of this page and follow the instructions there. Afterwards, check that all of the chemical levels are correct and/or that there is plenty of detergent available for the expected workload.

WASHING A RACK OF WARE

For a typical daily start-up, it is recommended to run the machine through 3 cycles to ensure that all cold water is out of the system and to verify that the unit is operating correctly. To cycle the machine, ensure that the power is on and that the tub has filled to the correct level. Push the start button: The unit will start, run through the cycle, and shut off automatically. Repeat this two more times. The unit should now be ready to proceed with the washing of ware. To wash a rack, open the door completely and slide the rack into the unit. Close the door, press the start button and the unit will start. After the machine has drained and the cycle light turns off, the cycle is complete.

OPERATIONAL INSPECTION

Based upon usage, the pan strainer may become clogged with soil and debris as the workday progresses. Operators should regularly inspect the pan strainer to ensure it has not become clogged. If the strainer does, it will reduce the washing capability of the machine. Instruct operators to clean out the pan strainer at regular intervals or as required by work load.

SHUTDOWN & CLEANING

At the end of the workday, close the door. Start a cycle. Wait approximately five seconds after the green cycle light comes on and then push the POWER OFF switch. This will put the machine in shutdown mode which will let the machine drain completely prior to shutting off. Once the wash tub is drained and power light is off, remove he pan strainer. Remove soil and debris from the strainer and set to the side. Unscrew the wash and rinse arms from their manifolds. Remove the end caps and flush the arms with water. Use a brush to clean out the inside of the arms. If the nozzles appear to be clogged, use a toothpick to remove the obstruction. Wipe the inside of the unit out, removing all soil and scraps. Reassemble the wash and rinse arms and replace them in the unit. The arms only need to be hand tight, do not use tools to tighten them down. Reinstall the strainer and close the door.

DELIMING OPERATIONS

NOTE: If this machine is equipped with an HTS-11, scale prevention and corrosion control device, and lime is becoming a frequent problem, the cartridge needs to be replaced. To order a replacement cartridge, call the manufacturer to have one shipped.

In order to maintain the dish machine at its optimum performance level, it will be required to remove lime and corrosion deposits on a frequent basis. A deliming solution should be available from your detergent supplier. Read and follow all instructions on the label of the deliming solution.

NOTE: If this machine is equipped with a HTS-11, scale prevention and corrosion control device, and lime is becoming a frequent problem, the cartridge needs to be replaced. To order a replacement cartridge, call Jackson immediately to have one shipped to you.

To proceed with the deliming operation, fill the dish machine and add the correct amount of deliming solution as recommended by the deliming solution manufacturer. The water capacity of the tank can be verified on the specification sheet (s) of this manual.

Perform the following operations to delime the dish machine:

1. Push Manual Switch on the front of the control panel.
2. Close the door (after adding the deliming solution).
3. Run the machine for the recommended period of time.
4. Press the Power Switch to turn the unit off and open the door.
5. Wait five minutes, then inspect the inside of the machine. If the machine is not delimed, run another time cycle as per the deliming solution's instructions.
6. When clean, drain and re-fill the machine.
7. Run in MANUAL for 10 minutes to remove residual deliming solution.
8. Drain and re-fill the machine.
9. Wait five minutes, then inspect the inside of the machine. If the machine is not delimed, run another time cycle as per the deliming solution's instructions.
10. When clean, drain and refill the machine (steps 1 and 2).
11. Run delime mode for 10 minutes to remove residual deliming solution.
12. Drain and refill the machine.

PREVENTATIVE MAINTENANCE

The dish machines covered in this manual are designed to operate with a minimum of interaction with the operator. However, this does not mean that some items will not wear out in time. Jackson highly recommends that any maintenance and repairs not specifically discussed in this manual should be performed by QUALIFIED SERVICE PERSONNEL ONLY. Performing maintenance on your dish machine may void your warranty if it is still in effect.

There are many things that operators can do to prevent catastrophic damage to the dish machine. One of the major causes of component failure has to do with pre-scrapping procedures. A dish machine is not a garbage disposal; any large pieces of material that are put into the machine shall remain in the machine until they are either broken up (after spreading out on your ware!) or physically removed. Strainers are installed to help catch debris, but they do no good if they are clogged. Have operators regularly inspect the pan strainers to ensure (1) that they are free of soil and debris and (2) they are laying flat in the tub.

When cleaning out strainers, do NOT beat them on waste cans. The strainers are made of metal and can be forgiving; but once severe damage is done, it is next to impossible for the strainer to work in the way it was designed to. Wipe out strainers with a rag and rinse under a faucet if necessary. For stubborn debris, a toothpick should be able to dislodge any obstructions from the perforations. Always ensure that strainers are placed back in the machine before operation and that they lay flat in the tub.

You may wish to also refer to the page entitled “Detergent Control” in order to learn more about how your water hardness will effect the performance of your machine. Hard water makes dish machines work harder and decreases efficiency.

Again, it is important to remind operators that trying to perform corrective maintenance on the dish machine could lead to larger problems or even cause harm to the operator. If a problem is discovered; secure the dish machine using proper shut down procedures as listed in this manual and contact a QUALIFIED SERVICE AGENCY.

Some problems, however, may having nothing to do with the machine itself and no amount of preventative
maintenance is going to help. A common problem has to do with temperatures being too low. Verify that the water temperatures coming to your dish machine match the requirements listed on the machine data plate. There can be a variety of reasons why your water temperature could be too low and you should discuss it with a QUALIFIED SERVICE AGENCY to determine what can be done.

PREVENTATIVE MAINTENANCE (CONTINUED)

By following the operating and cleaning instructions in this manual, you should get the most efficient results from our machine. As a reminder, here are some steps to take to ensure that you are using the dish machine the way it was designed to work:

1. Ensure that the water temperatures match those listed on the machine data plate (on the front left of machine).

2. Remove as much soil as possible from dishes before loading into racks.

3. Ensure that all strainers are in place, laying flat in tub and free of soil and debris before operating the machine. To clean strainers, wipe them out with a rag and rinse under a faucet. For stubborn debris, a toothpick can be used to dislodge any obstructions from the perforations. Do not beat strainers on waste cans; once bent they will not work properly.

4. If hard water is present, install an HTS-11 into the water line connecting to the dishmachine (see section "Plumbing the Dishmachine").

5. Ensure that all wash and/or rinse arms are secure in the machine before operating.

6. Ensure that drains are closed/sealed before operating.

7. Do not overfill racks.

8. Ensure that glasses are placed upside down in the rack.

9. Ensure that all chemicals being injected into machine have been verified as being at the correct concentrations.

9. Clean out the machine at the end of every workday as per the instructions in the manual (see section on "Shutdown & Cleaning").

10. Always contact a qualified service agency whenever a serious problem arises.

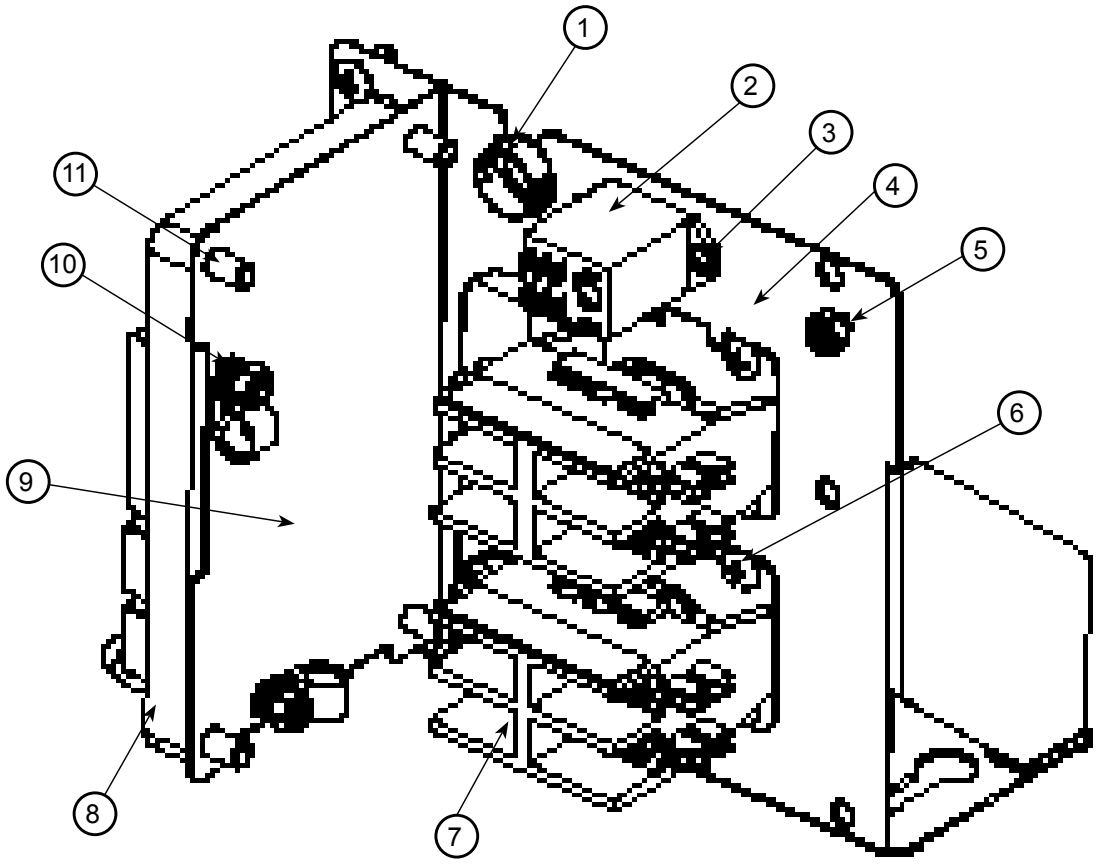
11. Follow all safety procedures, whether listed in this manual or put forth by local, state or national codes/regulations.

WARNING: Inspection, testing and repair of electrical equipment should be performed only by qualified service personnel. Certain procedures in this section require electrical tests or measurements while power is applied to the machine. Exercise extreme caution at all times. If test points are not easily accessible, disconnect power, attach test equipment and reapply power to test. When replacing electrical parts, disconnect power at source circuit breaker.

PROBLEM	POSSIBLE CAUSE	REMEDY
Water overflow from bottom of door.	1. Clogged drain. 2. Machine not level. 3. Excessive inlet pressure. 4. Detergent foaming. 5. Wash or rinse arm end plug missing.	1. Remove obstruction. 2. Level machine or increase height to the front. 3. Install pressure reducing valve or adjust if one is present. Ensure flow meets data plate specification. 4. Reduce detergent quantity. 5. Replace.
Wash motor doesn't operate on delime wash.	1. Loose or broken wires. 2. Defective manual wash switch. 3. Defective motor starting relay. 4. Machine in FAULT mode and locked out.	1. Reconnect or replace wires in motor. 2. Verify delime switch triggers input on PLC. If not, check wiring/replace membrane. 3. Replace. 4. Review fault screen for active faults.
No water comes through the rinse arms when the "ON/ FILL" switch is depressed.	1. Water not turned on. 2. Defective solenoid valve	1. Turn water on. 2. Replace solenoid valve.
Little or no water coming through the rinse assemblies.	1. Limed up rinse heads or piping. 2. Low water pressure.	1. Delime rinse heads. 2. Increase pipe size to machine. Adjust pressure regulator (part not standard on machine).
Rinse water runs continuously with breaker turned off.	1. Defective plunger in solenoid valve. 2. Defective diaphragm in solenoid valve.	1. Replace. 2. Replace diaphragm.

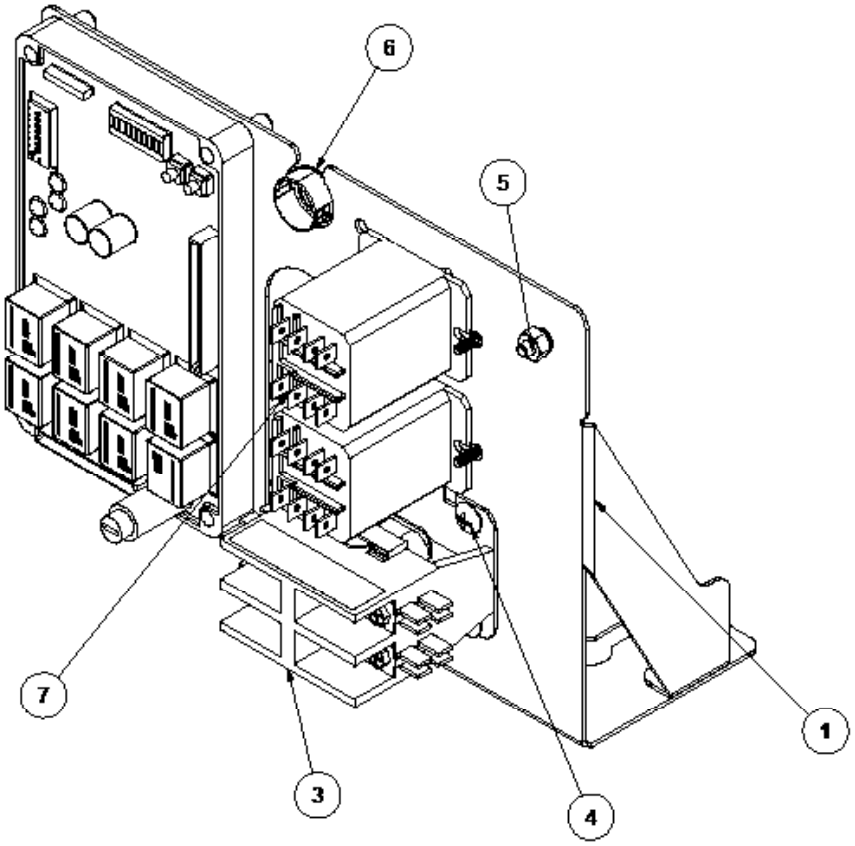
PROBLEM	POSSIBLE CAUSE	REMEDY
Wash temperature not at required reading on home screen.	1. Water level low. 2. RTD set point too slow. 3. Defective RTD. 4. Wash heater defective. 5. Defective heater contactor R1.	1. Check water level. If low, run new fill cycle. 2. Check fault screen. 3. Adjust wash temperature set point. Replace 4. Replace heater element. 5. Replace.
Rinse water not at required temperature range.	1. RTD is defective. 2. Incoming rinse water does not meet minimum criteria indicated machine data plate. 3. Rinse heaters damaged. 4. Setpoint screens set low.	1. Replace if necessary. 2. Adjust as required. 3. Check amperages. Replace if necessary. 4. Adjust rinse tank setpoint.
Machine doesn't drain when power button is pressed.	1. Drain clogged. 2. Standpipe not removed prior to drain. 3. Defective drain valve.	1. Remove obstruction. 2. Remove standpipe and run drain cycle again. 3. Replace.
No indication of pressure.	1. Water turned off. 2. Transducer disconnected. 3. Pressure transducer defective.	1. Turn water on. 2. Verify wiring. 3. Replace pressure transducer.

AVENGER HT CONTROL PANEL



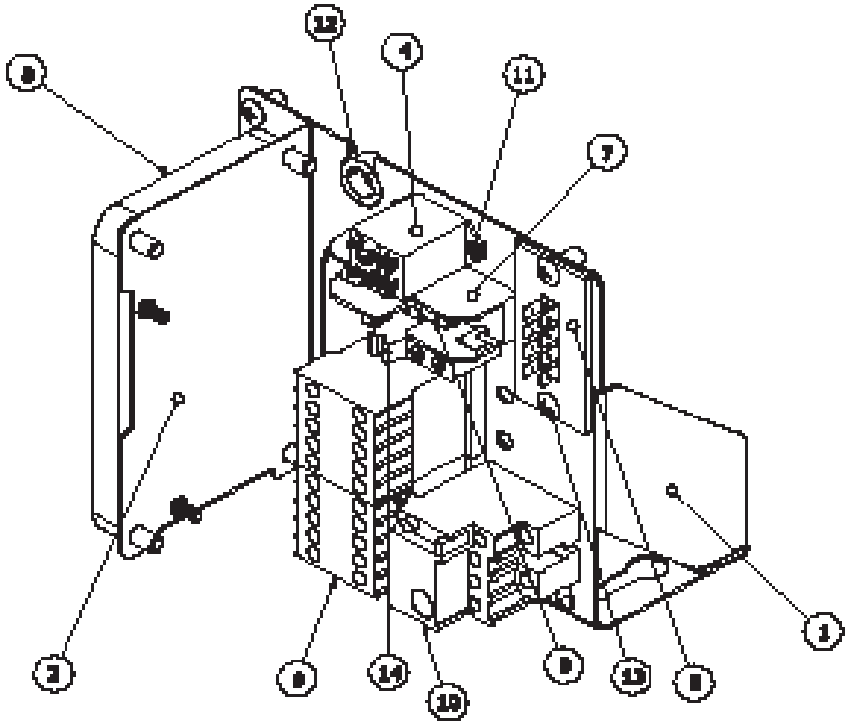
ITEM	QT		
1	1	Heyco Open/Closed Busing .875	5975-003-35-21
2	1	Relay, Omron	05945-111-89-75
3	2	Screw, 6-32 X 3/8	05305-002-25-91
4	1	Control Panel Weldment	05700-003-31-48
5	3	Locknut, Nylon	05310-373-01-00
6	8	Screw, 10-32 X 3/8	05305-173-12-00
7	2	Contactor, 240V	05945-002-74-20
8	1	Universal Timer	05945-003-33-09
	1	Fused Universal Timer (not shown)	05945-003-75-23
9	1	Timer Mounting Bracket (Avenger HT Only)	05700-003-36-05
10	1	P Clamp 1/4”	05975-002-61-42
	1	Locknut. 6-32 w/ Nylon Insert	05310-373-03-00
11	4	Screw, 10-32 X 1	05305-002-19-42

AVENGER LT CONTROL PANEL



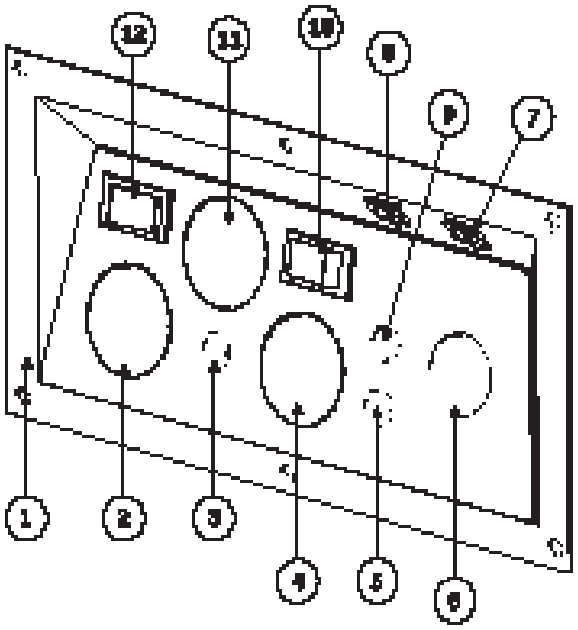
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	W- Control Panel LT with Heater	05700-003-45-73
2	1	Timer, Universal Polytron	05945-003-33-09
3	2	Contactor, 115V, 30A	05945-109-05-69
4	1	Screw, 10-32 3/8” Long Phil Truss	05700-003-31-48
5	3	Locknut, 10 -24 S/S Hex w/ Nylon Ins.	05305-173-12-00
6	8	Heyco Open/Closed Busing .875	5975-003-35-21
7	2	Relay, 20A	5945-002-90-51

AVENGER HT 480V CONTROL PANEL



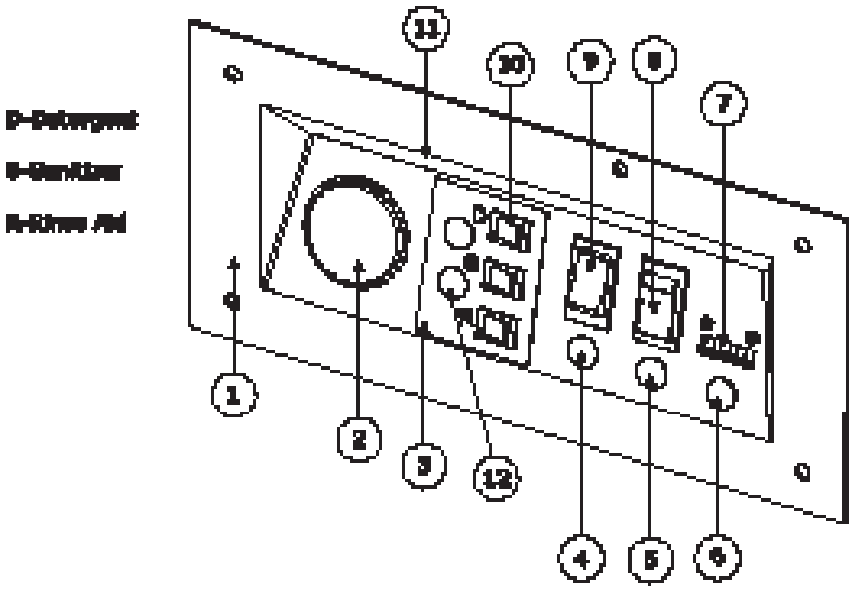
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Electrical Panel Weldment	05700-003-37-46
2	1	Timer, Bracket Assembly	05700-003-36-05
3	1	Timer, Universal	05945-003-33-09
*	1	Fused Universal Timer (Alternate Construction)	05945-003-75-23
	1	Fuse	05920-003-75-24
	1	9 Wire Harness	05999-003-75-81
	1	10 Wire Harness	05999-003-87-88
4	1	Relay	05945-002-47-41
5	1	Terminal Board	05940-021-94-85
6	1	Track, Terminal Block	05700-003-37-49
7	1	Fuse Holder	05920-011-72-89
8	1	Fuse, 1/4 AMP	05920-002-75-95
9	2	Contactor	05945-111-60-07
10	1	Overload	05945-111-60-08
11	2	Screw, 6-32 X 3/8" w/ External T Washer	05305-002-25-91
12	1	Open/Closed Bushing, 7/8"	05975-003-35-21
13	6	Screw, 10-32 X 3/8" Long Phil Truss Head	05305-173-12-00
14	2	End Clamp	05950-111-60-30
15	1	Transformer (not shown)	05950-011-50-70

AVENGER HT



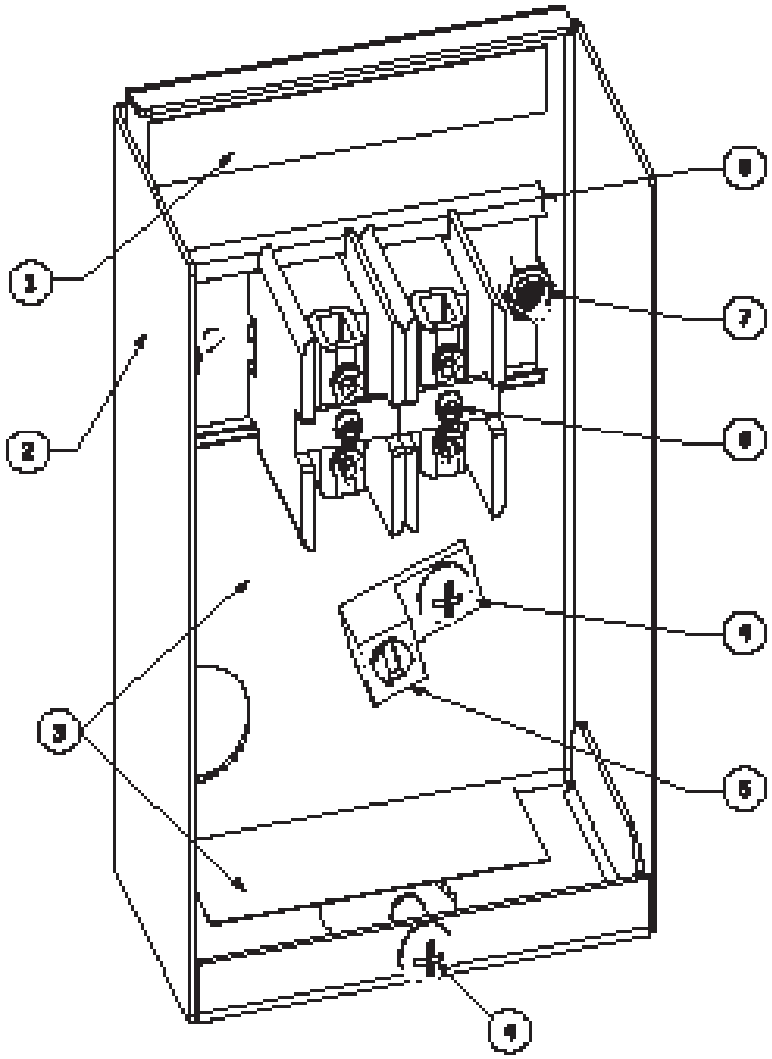
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Control Panel	09330-003-31-66
	1	Decal, Control Panel	09905-003-31-65
	6	Locknut, 1/4"-20 S/S Hex w/ Nylon Insert	05310-374-01-00
2	1	Thermometer, 48" Rinse	06685-111-68-48
3	1	Light, Amber	05945-111-44-44
4	1	Thermometer, 96" Wash	06685-111-68-49
5	1	Light, Red	05945-111-44-45
6	1	Window Plug	05975-003-31-72
7	1	Switch, Red	05930-011-49-54
8	1	Switch, Detergent	05930-011-49-54
9	1	Light, Green	05945-111-44-43
10	1	Switch, On-Off	05930-301-49-00
11	1	Gauge, 0-100 PSI with Green Zone	06680-011-86-42
	1	Bell Adapter, 1/4 NPT X 1/8 FNPT	04730-003-33-02
	1	Hose, Pressure Gauge	04730-003-33-02
12	1	Switch, Auto-Manual	05930-011-49-55
**	1	Kick Plate Weldment (not shown)	05700-003-32-91
**	1	Complete Control Panel Assembly	05700-003-31-64
**	1	Wire Harness	05999-003-34-61

AVENGER LT



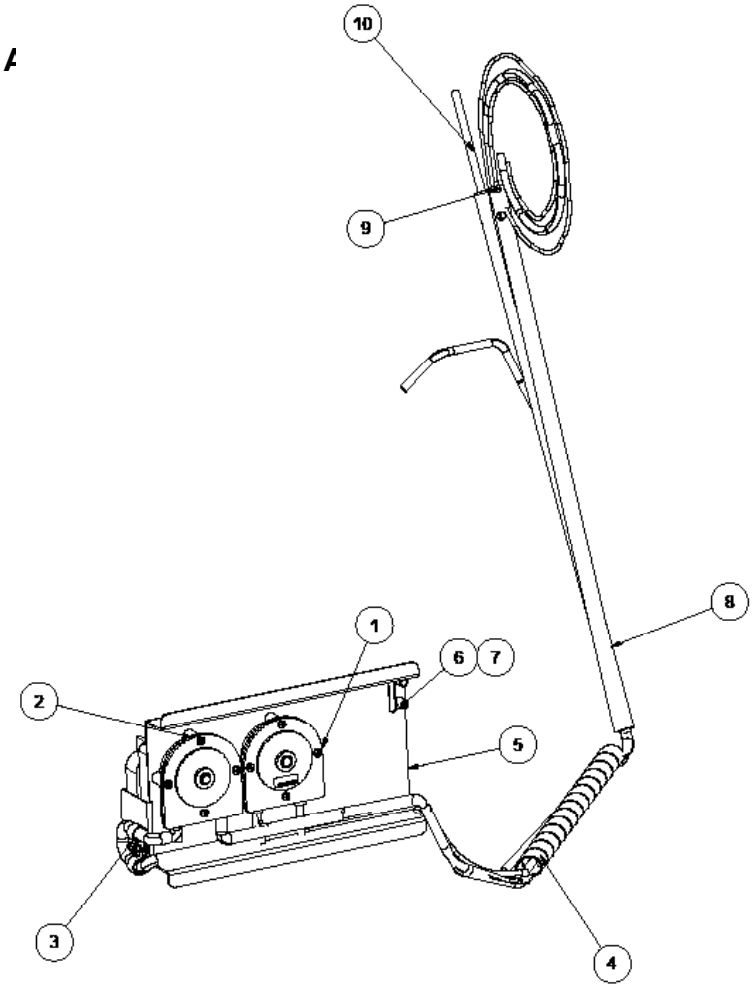
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Control Panel	09330-041-73-90
	1	Decal, Control Panel	09905-003-31-95
	6	Locknut, 1/4"-20 S/S Hex w/ Nylon Insert	05310-374-01-00
2	1	Thermometer, 48" Rinse	06685-111-68-48
3	1	Plate, Switch Mounting	05700-011-80-40
	1	Decal, Prime Switch	09905-011-49-52
	1	Locknut, 6-32 Hex w/ Nylon Insert	05310-373-03-00
4	1	Light, Red	05945-111-44-45
5	1	Light, Amber	05945-111-44-44
6	1	Light, Green	05945-111-44-43
7	1	Counter, 115V	05990-111-35-38
	2	Screw, 4-40 X 1/4" Phillips Pan Head	05305-002-32-38
9	1	Switch, Auto-Manual	05930-011-49-55
10	3	Switch, On-Off	05930-301-49-00
11	2	Buzzer, 115V (not shown)	05990-003-36-12
	2	Screw, 6-32 X 3/8 Pan Phillips Head	05305-171-07-00
12	1	Light, Red	05945-504-07-18
**	1	Kick Plate Weldment (not shown)	05700-003-53-14
**	1	Complete Control Panel Assembly	05700-003-34-23
**	1	Wire Harness	05999-003-34-62

TERMINAL BLOCK BOX ASSEMBLY



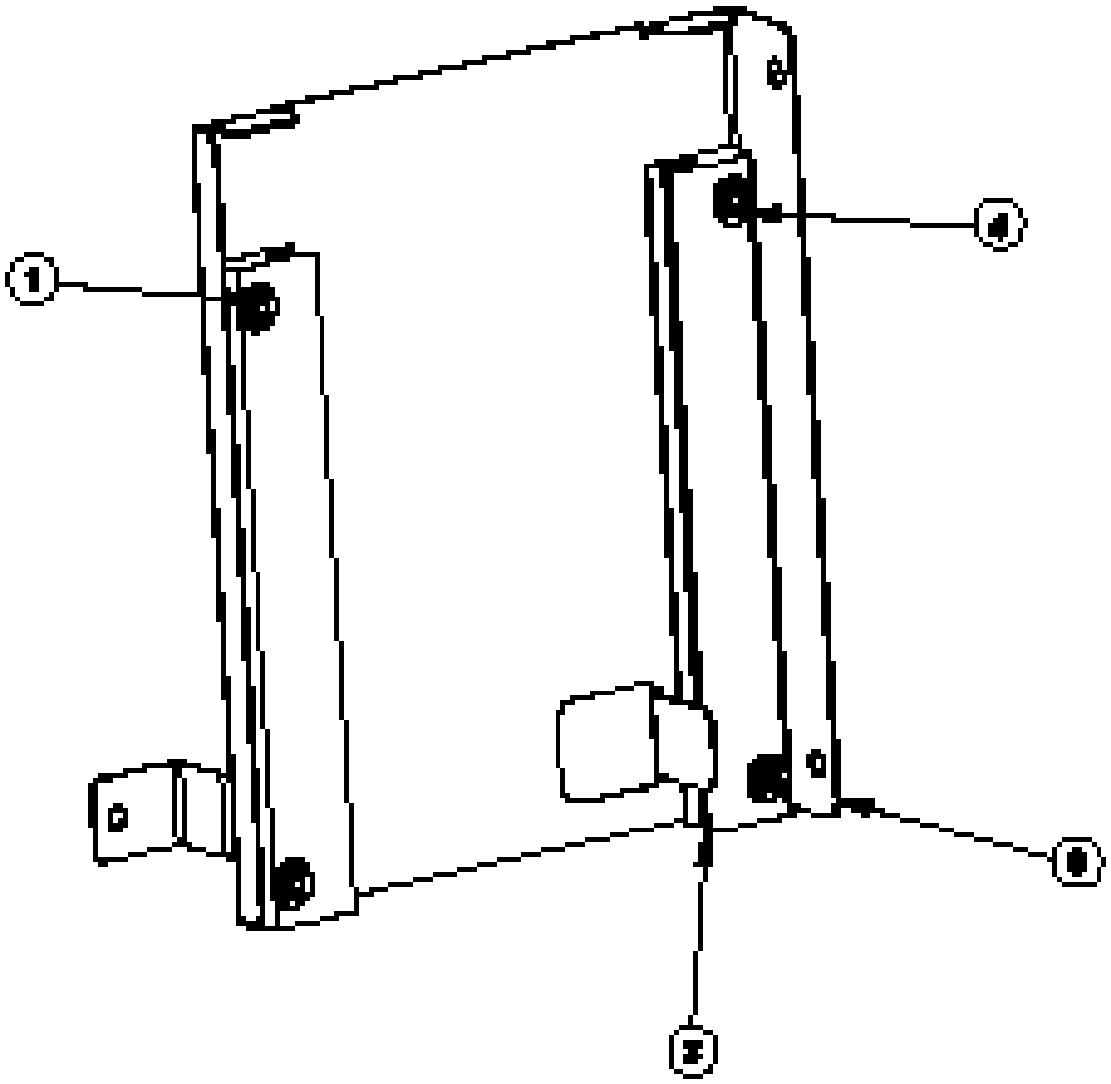
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Decal, Power Connections	09905-011-47-35
2	1	Terminal Block Box	05700-003-27-69
	1	Terminal Box Cover (not shown)	05700-003-27-70
3	1	Decal, Copper Conductors	09905-011-62-72
4	2	Screw, 10-32 X 1/2"	05305-011-39-36
5	1	Ground Lug	05940-200-76-00
6	2 3	Terminal block 480V	05940-500-02-19
7	1	Locknut, 10-24 S/S Hex with Nylon Insert	05310-373-01-00
8	1	Terminal Block Track	05700-000-43-60

Complete Chemical Feeder Pump A
05700-003-32-03



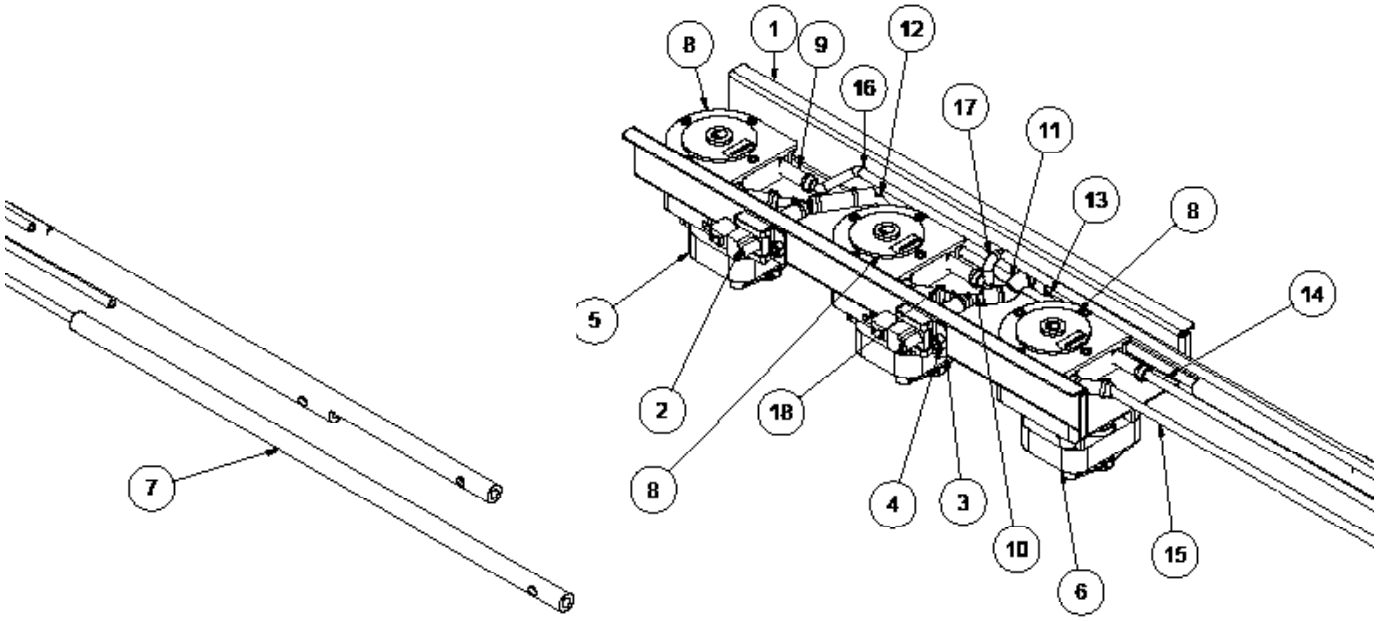
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	A-Peri Pump, 14 RPM	05700-002-72-82
2	1	A-Peri Pump, 36 PRM 240V/Red Tygoprene	05700-003-78-74
3	2	Strap, Nylon Loop	04320-002-71-22
4	1	CW 750 PE UV Black 8924 12”	05700-003-33-63
5	1	W Peripump Slide	05700-003-33-48
6	1	A-Stop Bracket	05700-003-36-24
7	2	Screw, 10-32 X 3/8” Long Phil Truss	05305-173-12-00
8	2	Tube Stiffener	05700-003-33-60
9	1	Tie, 4” PLT 1-M Panduit Cable	05700-003-33-58
10	1	A-Tube, Blue 1/4 X 22” Polyethylene	05700-011-86-78

Complete Avenger HT Peripump Track Assembly
05700-003-33-46



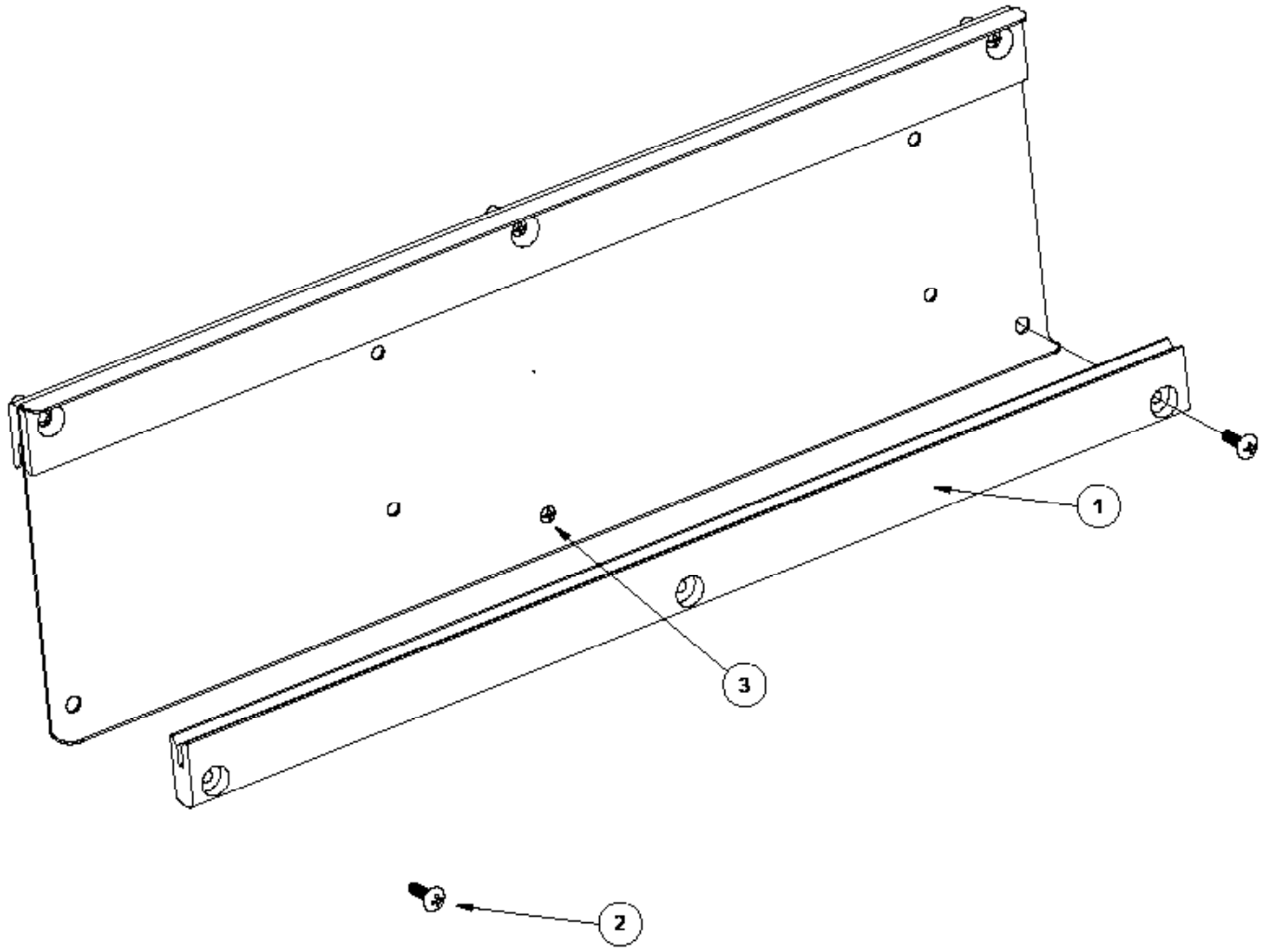
ITEM	QTY	DESCRIPTION	PART NUMBER
1	4	Screw, 10-32 X 5/8” PH Truss HD	05305-003-02-12
2	2	Track, Peripump HT	05700-003-33-44
3	1	A-Track Mount HT	05700-003-33-52
4	4	Locknut, 10-32 With Nylon Insert	05310-373-02-00

LT CHEMICAL FEEDER PUMP ASSEMBLY



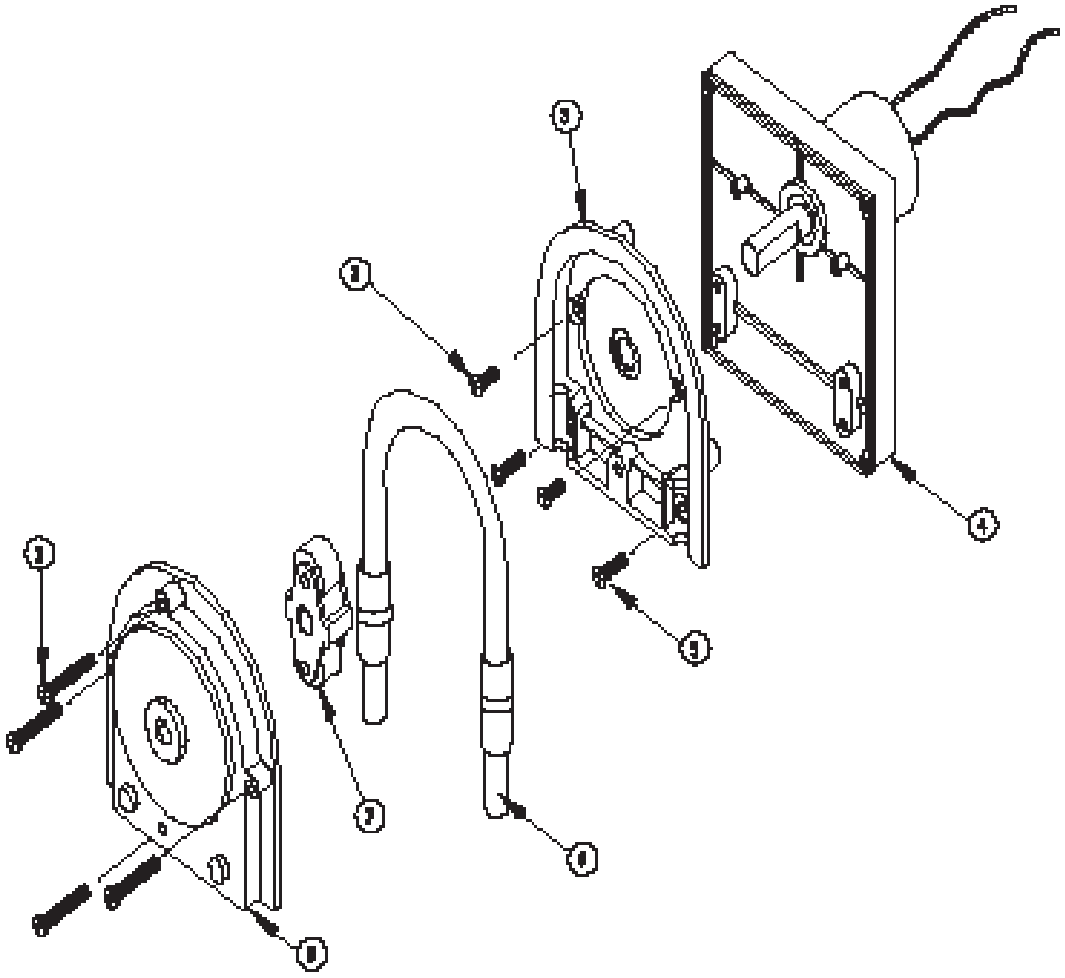
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	W-Peri Pump Channel	05700-003-53-25
2		Swtich, Vaccum	06685-003-36-13
3		F-Pressure Swtich Bracket	05700-003-53-03
4		Lockenut, 10-24 S/S Hex W/ Nylon Inserts	05310-373-01-00
5		Motor, 105-3036-2 36 RPM	04320-111-35-14
6		Motor, 14 RPM Peri Pump	04320-111-35-13
7		A-Kit, Peri Pump Assy W/ White Roller	04320-002-83-90
8		Tube Stiffener	05700-002-66-49
9		Tube, Tygoprene XL60 3/16 X 8 9657-25	05700-003-22-89
10		Wye, 1/4” Barbed PVDF	04730-003-36-14
11		Tubing, Clear 5/16 ID	04710-003-53-26
12		A-Tubing, 1/4 X 100 Red	05700-003-03-45
13		A-Tubing, 1/4 X 100 Long White	05700-003-20-67
14		A-Tube, 1/4 OD X 48 Blue Plastic	05700-002-62-11
15		A-Tubing, 1/4 X 100 Long Blue	05700-003-20-68
16		A-Tube, 1/4 OD X 48 Red Plastic	05700-002-62-12
17		A-Tubing, 1/4 X 48 White Plastic	05700-002-62-13
18		Tie, 4” PLT1M-M Panduit Cable	05945-602-01-16

Complete Avenger LT Peripump Track Assembly
05700-003-33-31



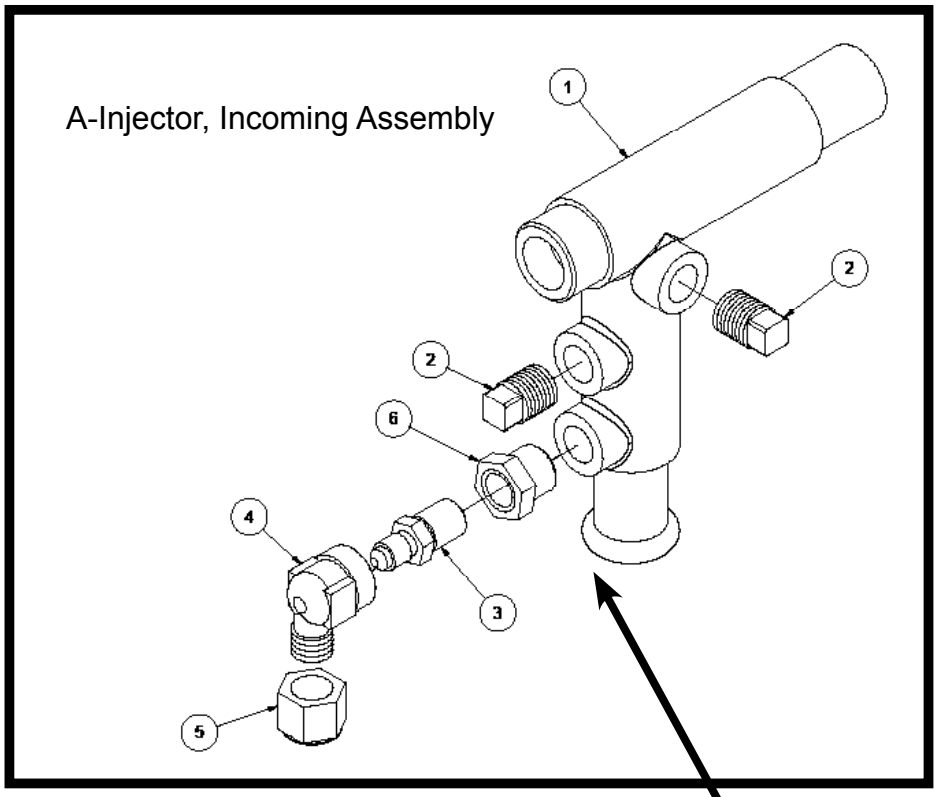
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Bracket, Track Mounting	05700-003-33-30
2	2	Track, Peripump	05700-003-33-29
3	6	Screw, 10-32 X 5/8” Truss Head	05305-003-02-12

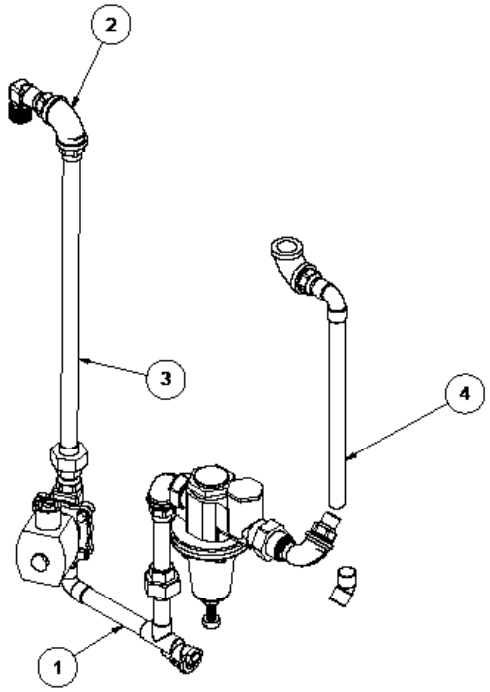
CHEMICAL FEEDER PUMP COMPONENTS

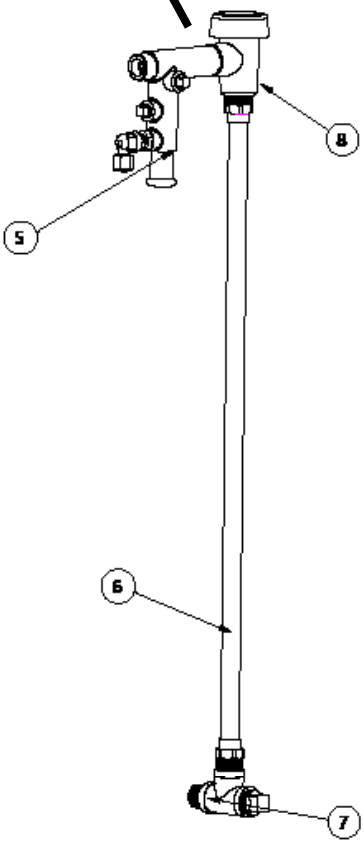


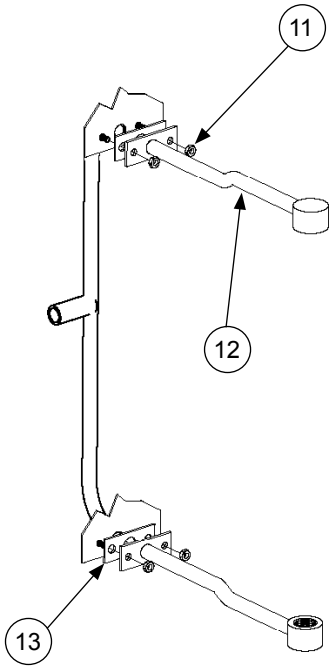
ITEM	QTY	DESCRIPTION	PART NUMBER
1	4	Screw, 6-32 X 3/4" Phillips Pan Head	05305-011-37-05
2	2	Screw, 8-32 X 3/8" Phillips Pan Head	05305-011-37-07
3	1	Rear Housing	04320-111-37-09
4	1	Motor, 14 RPM 115V Rinse Aid Feeder Pump	04320-111-35-13
	1	Motor, 14 RPM 240V Rinse Aid Feeder Pump	04320-111-47-46
	1	Motor, 36 RPM 115V Detergent/Sanitizer Feeder Pump	04320-111-35-14
	1	Motor, 36 RPM 240V Detergent/Sanitizer Feeder Pump	04320-111-47-47
5	2	Screw, 8-32 X 1/2" Phillips Pan Head	05305-011-37-06
6	1	Tygoprene Tube	05700-03-22-89
7	1	Roller, Black	04320-111-65-27
	1	Roller, White	04320-002-82-28
8	1	Front Housing	04320-111-37-08

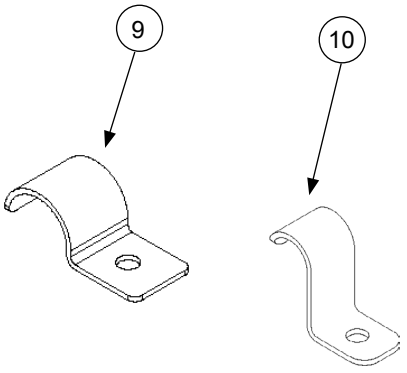
AVENGER HT PLUMBING ASSEMBLIES











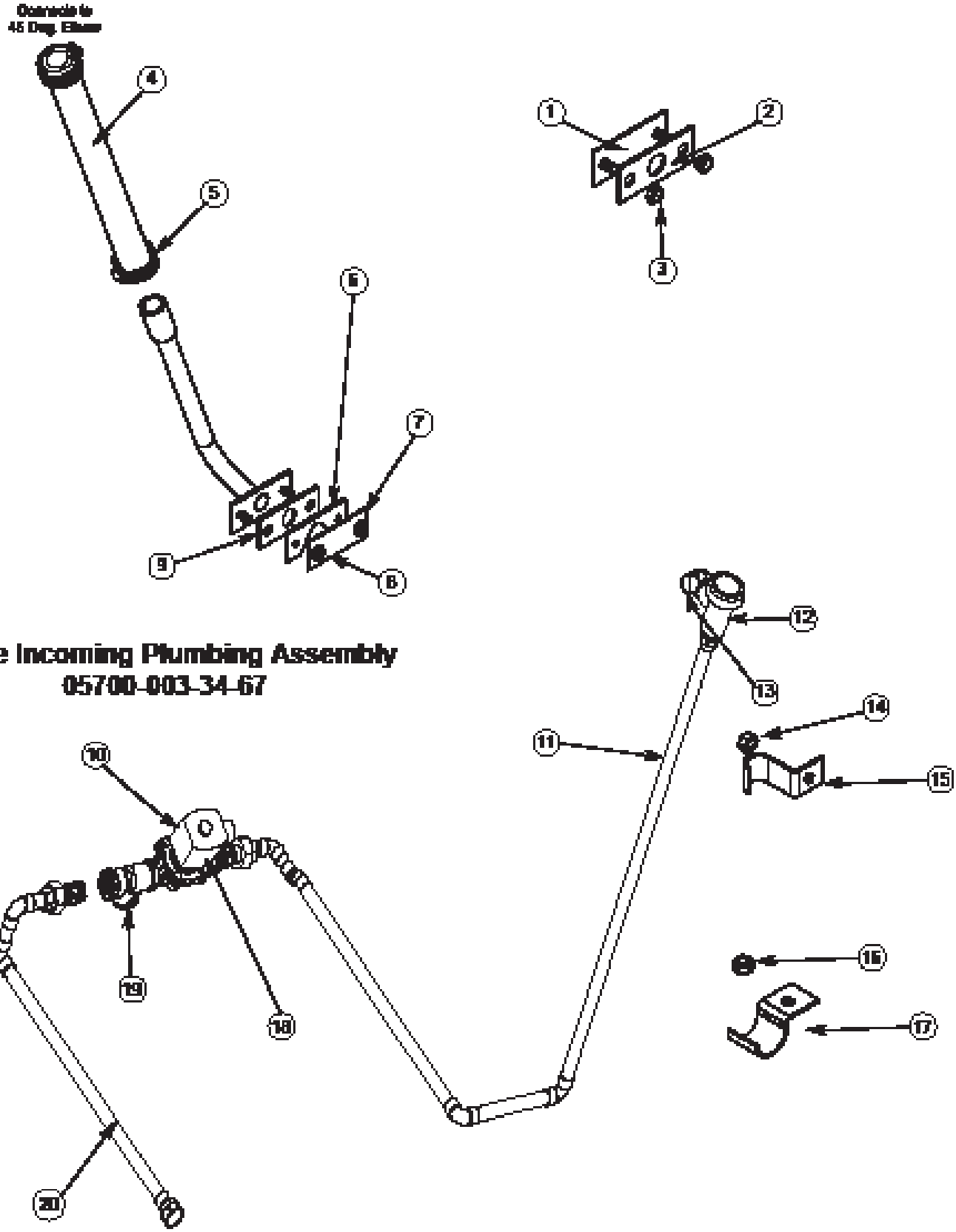
A-INJECTOR, INCOMING ASSEMBLY

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	W-Weld, Injector Machined	05700-031-41-83
2	2	Plug, 1/4 211 P-4 Brass	04730-209-01-00
3	1	Valve, Check	04820-111-51-14
4	1	Ftg, Outlet Elbow (ECO9218-8044)	04820-111-51-18
5	1	Nut, Tube 1/8PP Jaco P-0-2-SPEC Ecolab #92008002	04730-011-59-45
6	1	Bushing, 1/4 X 1/8 Stainless	04730-003-05-61

NOTE:
USE TEFLON TAPE ON THREADS, DO NOT USE PIPE DOPE

PLUMBING ASSEMBLIES

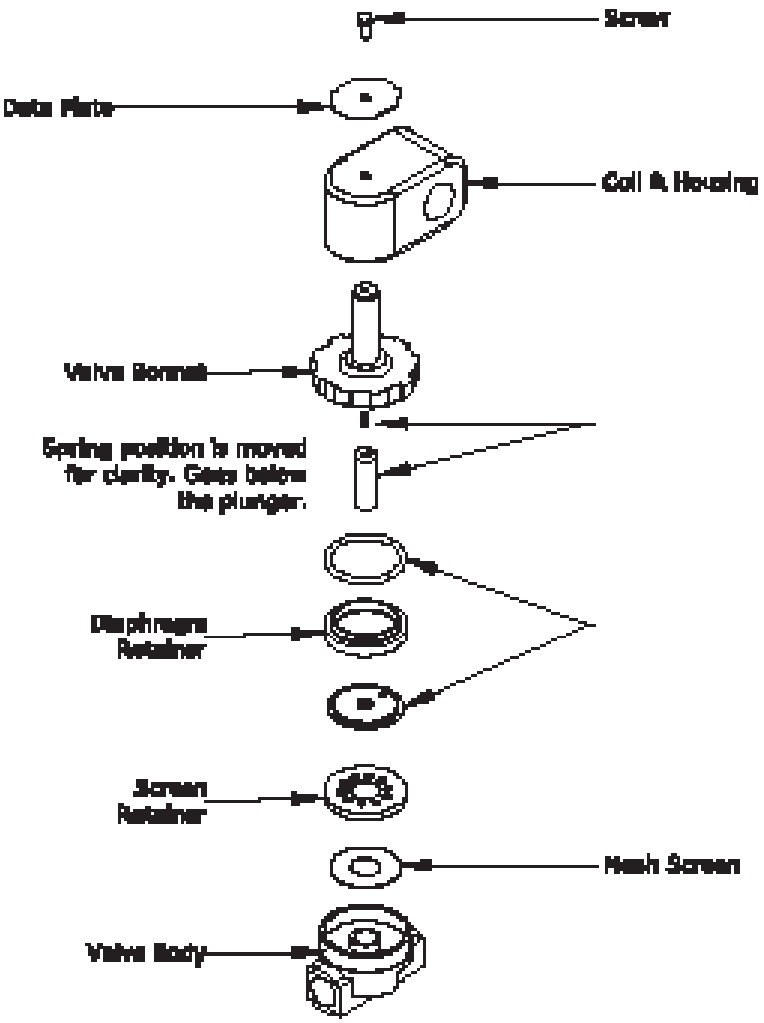
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	1/2 “ Plumbing Section	05700-003-32-17
2	1	A-Plumbing, Inlet Booter	05700-003-33-97
3	1	A-Plumbing, Inlet Vavle-Booster	05700-003-33-98
4	1	A-Plumbing, Inlet Hook-Up	05700-003-33-99
5	1	A-Injector, Incoming Assembly	05700-003-22-01
6	1	Assy, Avenger HT Vaccum Break	05700-003-32-15
7	1	Vac BRKR 1/2 Brass Bon.EDP-0336402	04820-003-06-13
8	1	Nipple-1/2 Close Brass	04730-207-15-00
9	2	Clamp, Pipe	05700-000-35-05
10	1	Clamp, Pipe	05700-011-38-62
11	2	Lock Nut 1/4-20 S/S	05310-374-01-00
12	2	Rinse Hub Weldment	05700-021-38-31
13	2	Rinse Gasket	05330-111-42-81

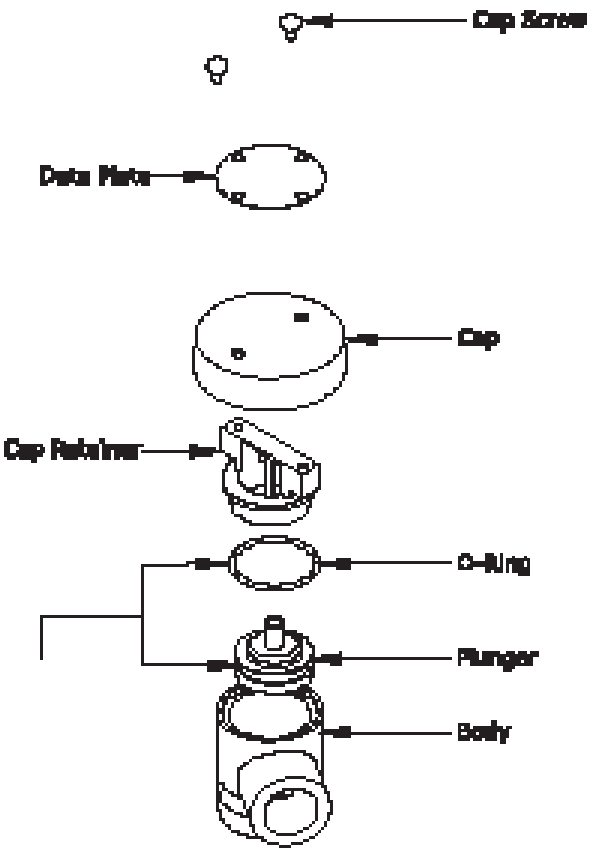


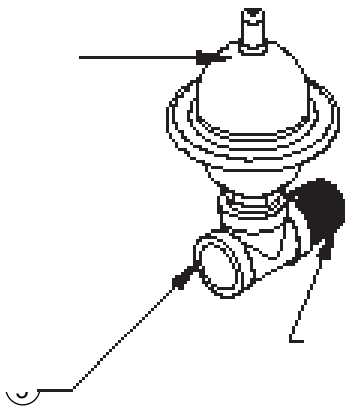
Complete Incoming Plumbing Assembly
05700-003-34-67

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Plate, Rinse Weldment	05700-011-82-73
2	1	Gasket, Rinse	05330-111-42-81
3	2	Locknut, 1/4"-20 S/S Hex w/ Nylon Insert	05310-374-01-00
4	1	Injector hose, 3/4" x 11"	05700-003-29-68
5	2	Clamp, Hose	04730-719-06-09
6	1	Plate, Deflector	05700-002-62-49
7	1	Plate, Rinse	05700-011-82-86
8	2	Locknut, 1/4"-20 S/S Hex w/Nylon Insert	05310-374-01-00
9	1	Gasket, Rinse	05330-111-42-81
10	1	Incoming Plumbing Assembly	05700-003-34-66
11	1	Vacuum Breaker Tubing Assembly	05700-003-34-36
12	1	Vacuum Breaker	04820-003-06-13
13	1	Elbow, 45° 1/2" NPT x 3/4" Hose	04730-003-29-22
14	1	Locknut, 1/4"-20 Hex w/Nylon Insert	05310-374-01-00
15	1	Clamp, Pipe	05700-011-38-62
16	1	Locknut, 1/4"-20 Hex w/Nylon Insert	05310-374-01-00
17	2	Clamp, Pipe	05700-000-35-05
18	1	Valve, Solenoid 1/2" 110 Volt	04810-003-71-55
19	1	Y-Strainer	04730-217-01-00
20	1	Incoming Connection Plumbing	05700-003-34-65

RINSE SOLENOID VALVE & VACUUM BREAKER REPAIR PARTS KIT/WATER HAMMER KIT OPTION



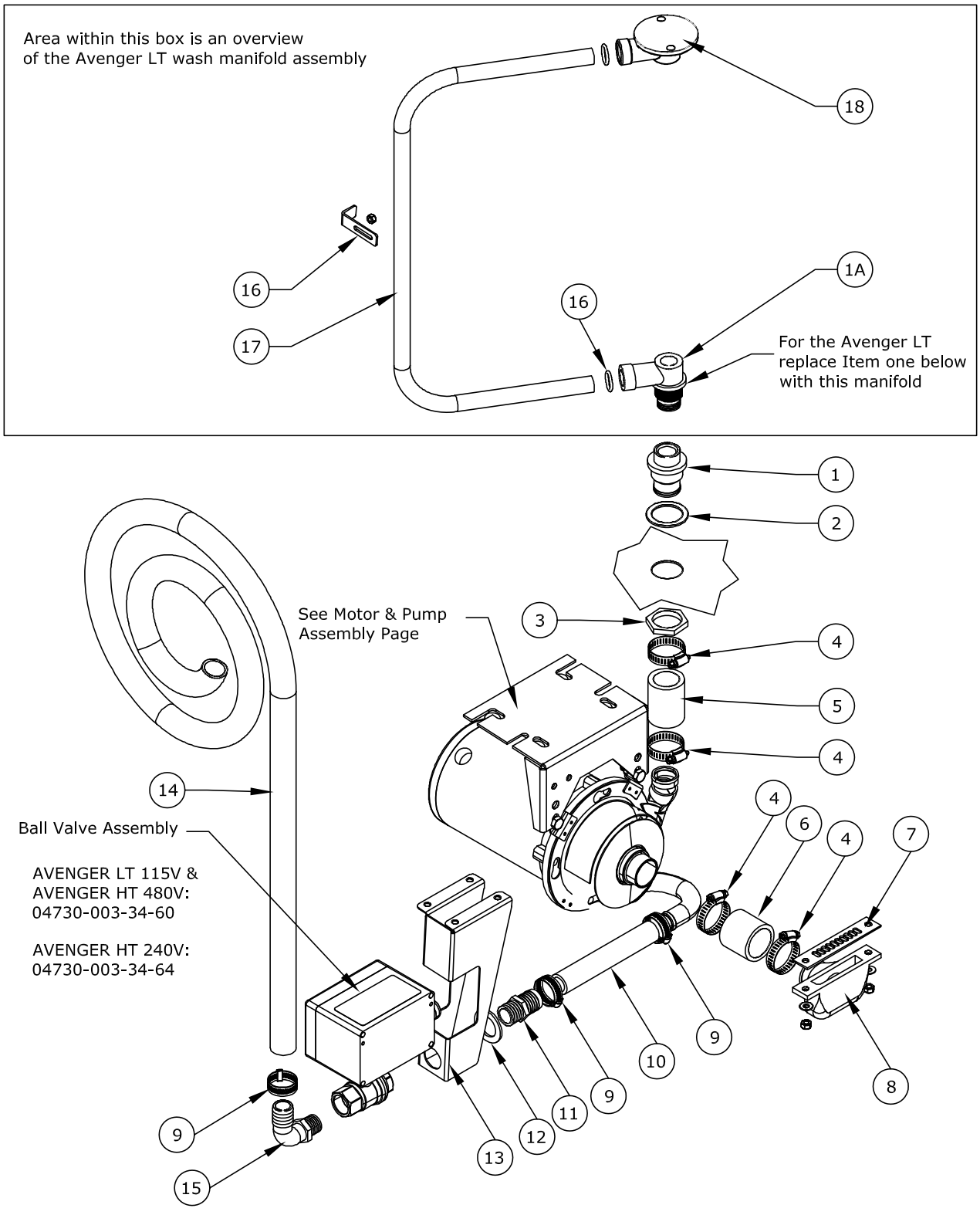




RINSE SOLENOID VALVE & VACUUM BREAKER REPAIR PARTS KIT/WATER HAMMER KIT OPTION

ITEM	QTY	DESCRIPTION	PART NUMBER
		Complete 110 Volt Solenoid Valve Assembly 1/2” Assembly	04810-100-12-18
		Coil & Housing Only 1/2”	06401-003-07-43
		Complete 220 Volt Solenoid Valve Assembly 1/2” Assembly	04810-003-07-43
		Coil & Housing Only 1/2”	06401-003-07-43
1	1	Spring & Plunger Kit	06401-003-07-41
2	1	O-Ring & Diaphragm	06401-003-07-41
3	1	Components of Repair Kit	06401-003-06-23
		Complete Vacuum Breaker Assembly 1/2” NPT	04820-003-06-13
4		Water Hammer Arrestor	05700-002-64-67
5	1	Tee 1/2” X 1/2” 1/2”	04730-211-27-00
6	1	Close Nipple 1/2” NPT	04730-207-15-00

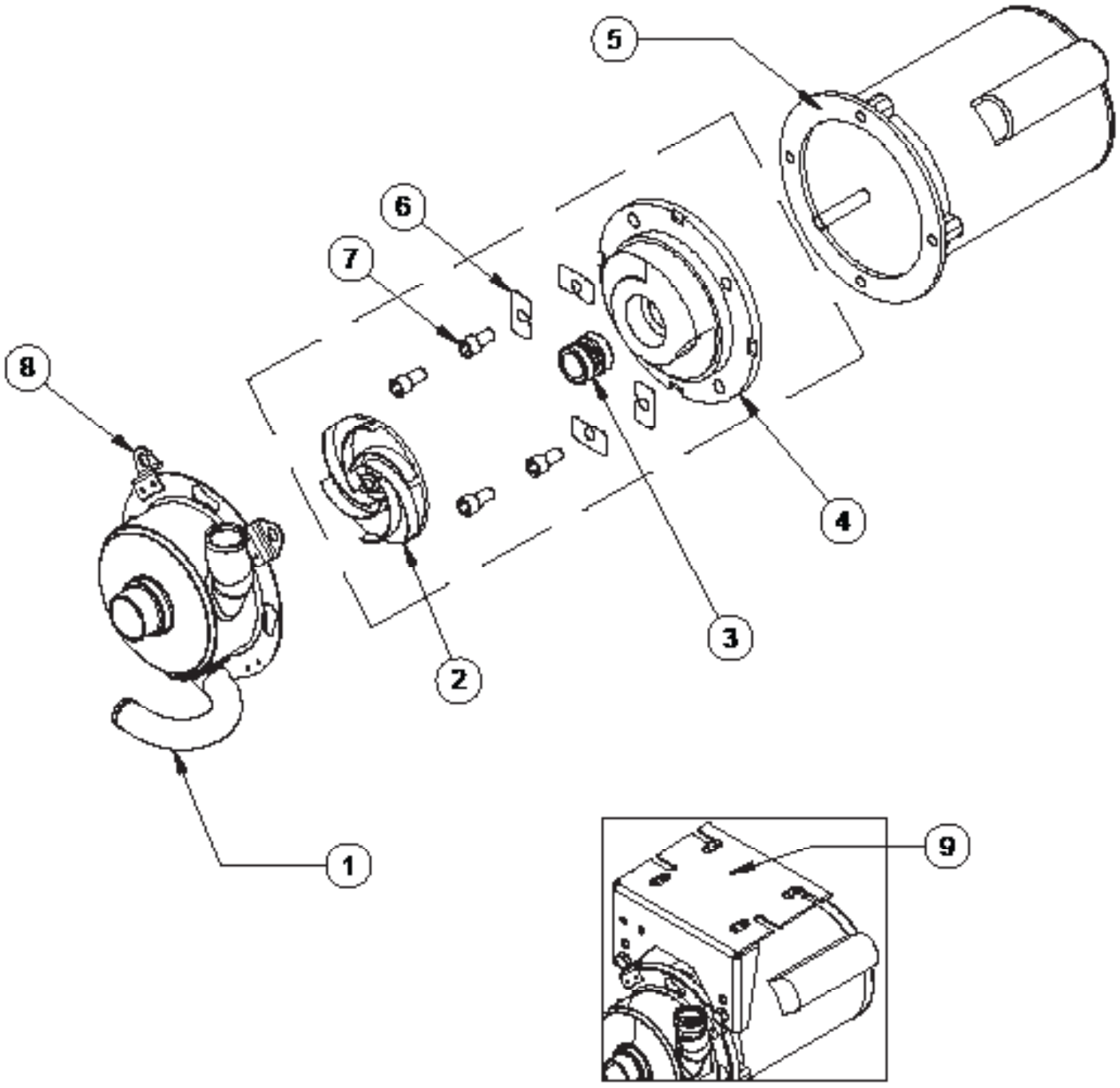
WASH MOTOR/DRAIN PLUMBING/AVENGER LT WASH MANIFOLD ASSEMBLY



WASH MOTOR/DRAIN PLUMBING/AVENGER LT WASH MANIFOLD ASSEMBLY

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Hub, Discharge Machine (Avenger HT Shown)	05700-021-37-90
1A	1	Lower, Wash Manifold (Avenger LT)	05700-021-52-80
2	1	Gasket, Manifold	05330-200-23-00
3	1	Nut, Jam 1-1/2” -12 NPT	05700-000-86-23
4	4	Hose Clamp, 1-5/16”-2 1/4” #28	04730-719-01-37
5		Hose, 1-1/4” X 2-1/4” Reinforced	05700-011-44-48
6	1	Hose, Bottom Manifold Pump	05700-001-22-92
7		Gasket, Suction Adaptor	05330-003-32-82
8	1 2 3	Casting, Suction Adaptor Washer, S/S 1/4”-20 I.D. Locknut, 1/4”-20 S/S	09515-031-39-86 05311-174-01-00 05310-374-01-00
9		Clamp, 3/16” to 1-1/2”	04730-719-06-09
10		Hose, 8” Straight Drain	04720-003-27-95
11		Hosebarb, 1”X 3/4” NPT Polypropylene	04730-011-65-86
12		Spacer, Drain Valve	05700-003-31-93
13		Bracket, Drain Valve Support	05700-003-31-74
14		Hose, 1” I.D. X Ten Feet Long	05700-011-39-72
15		Hose barb, 90 Degree 1” X 3/4” NPT	04730-011-65-87
16		O-Ring, Manifold	05330-111-35-15
17		Tube, Wash Manifold	05700-002-13-75
18		Upper Wash Manifold	05700-031-34-82
19		Bracket, Manifold Tube Positioning Locknut 1/4”-20 S/S	05700-011-34-63 05310-374-01-00

MOTOR & PUMP ASSEMBLY



Complete Pump & Motor Assembly, 60 HZ With Bracket
05700-003-31-57

Complete Pump & Motor Assembly, 60 HZ No Bracket
06105-002-72-75

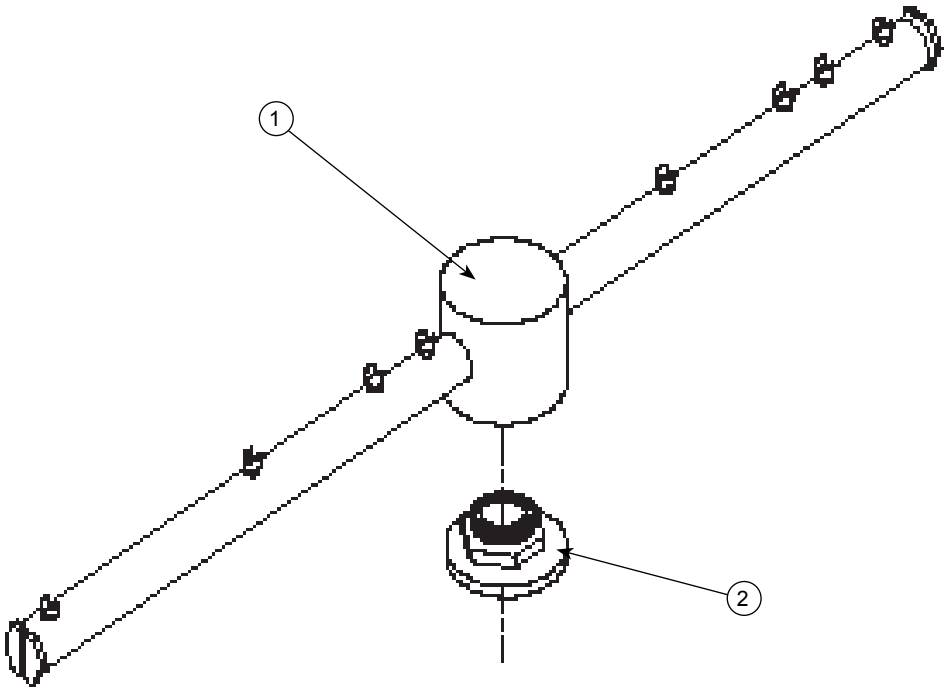
Pump Only Assembly, 60 HZ (Area indicated within box, Casing is included)
05700-002-79-50

Complete Pump & Motor Assembly, 480V 60 HZ With Bracket
05700-003-52-80

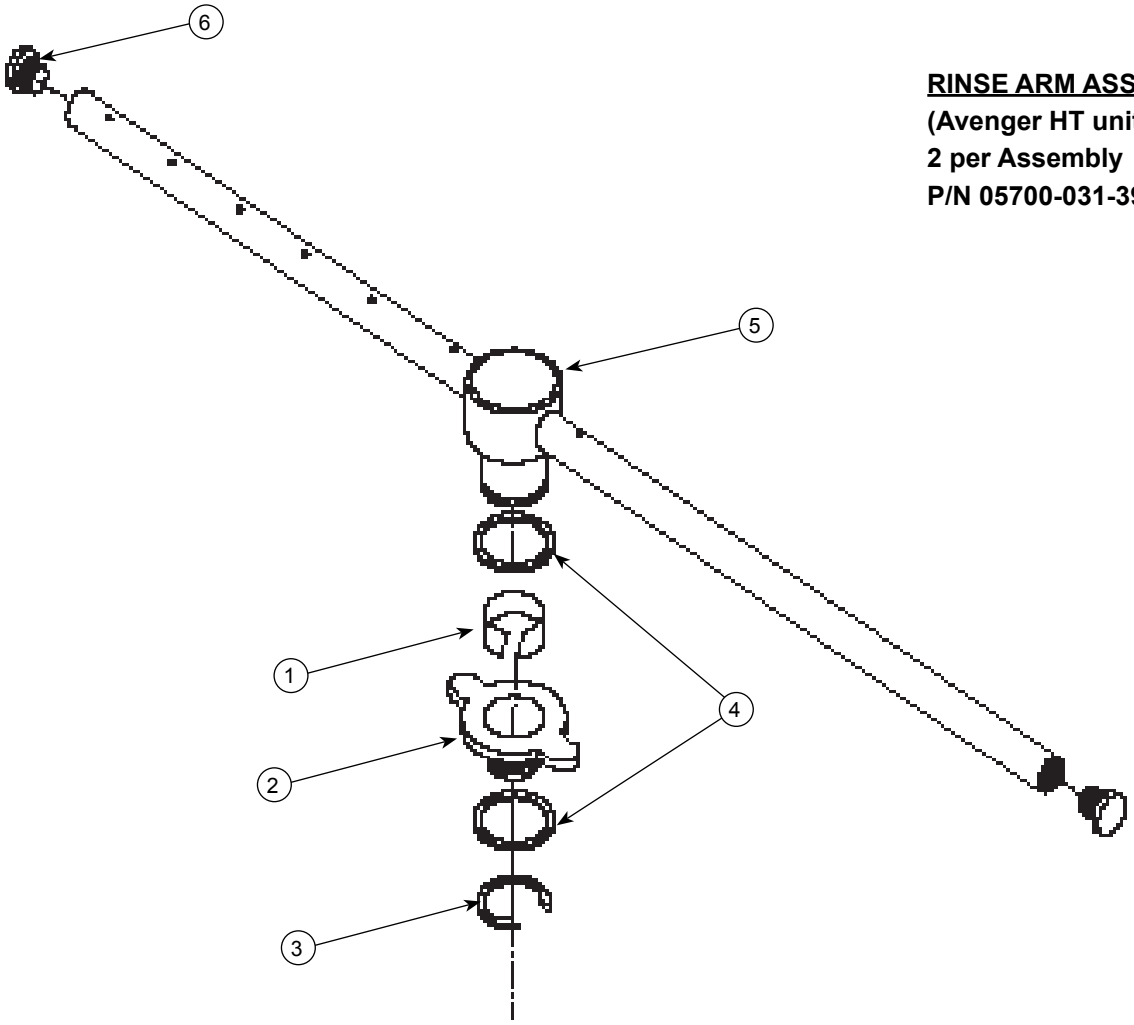
Complete Pump & Motor Assembly, 480V 60 HZ No Bracket
06105-003-52-78

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Pump Casing S/S, 60 HZ	05700-002-85-00
2	1	Impeller Assembly, 60 HZ	05700-002-81-86
3	1	Mechanical Seal, 60 HZ	05330-002-34-22
4	1	Seal Plate, 60 HZ	05700-002-81-87
	1	Case O-Ring, 60 HZ	05330-002-81-83
	1	Drain Plug (Not Shown)	04730-002-81-89
5	1	Motor Only, 208-230V, 60 HZ	06105-002-79-61
	1	Motor Only, 460V, 60 HZ	06105-003-52-64
6	1	Shim Kit	05700-002-82-58
7	1	Case Capscrew	05305-002-81-88
8	2	Bolt, 3 /8"	05311-276-03-00
	2	Lock washer, 3 /8"	05311-276-01-00
	2	Nut Hex, 3 /8"-16	05310-276-01-00
9	1	Mounting Bracket	05700-003-31-58

COMPLETE WASH ARM ASSEMBLY
2 Per Avenger LT
1 Per Avenger HT
P/N 05700-021-39-23



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Wash Arm w/Plug	05700-021-46-58
2	1	Bearing, Assembly	05700-021-35-97
3	1	O-Ring (Not Shown)	05330-002-60-69



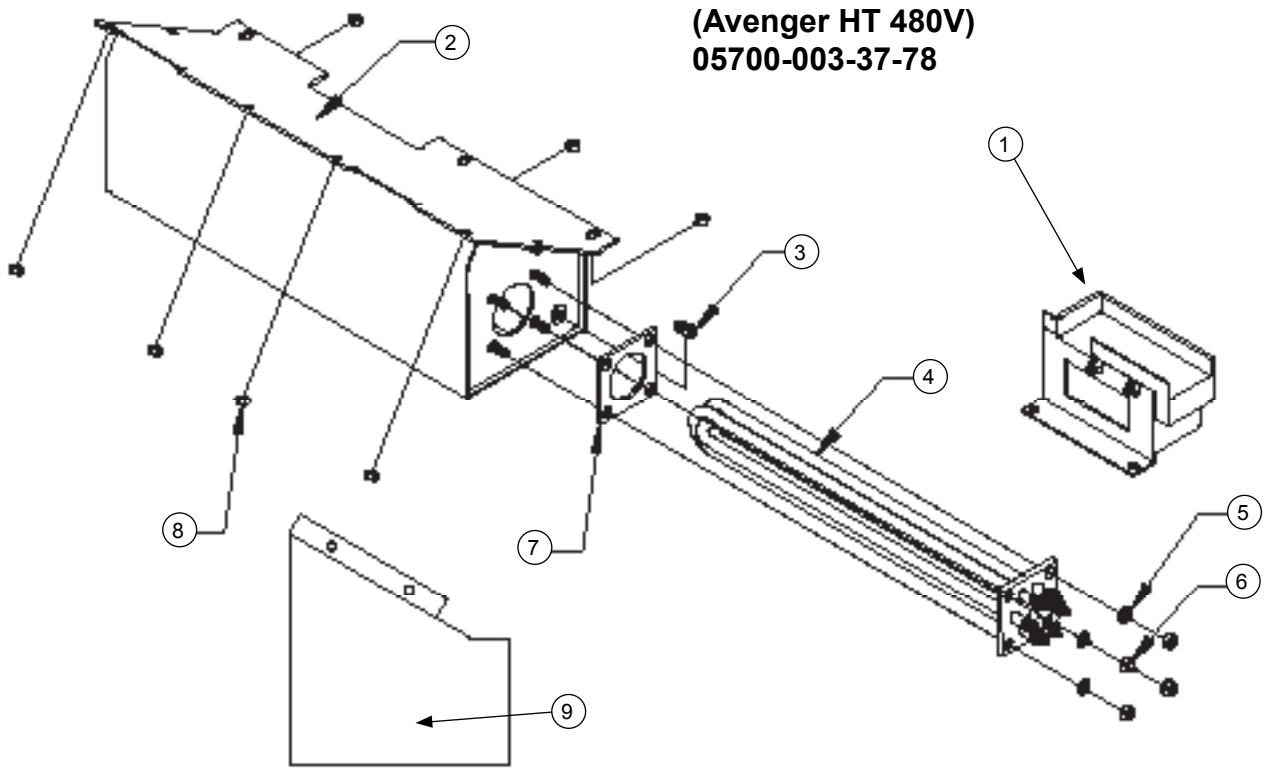
RINSE ARM ASSEMBLY
(Avenger HT units ONLY)
2 per Assembly
P/N 05700-031-39-21

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Bearing, Rinse Arm	03120-004-12-13
2	1	Bushing, Rinse Head	05700-021-33-84
3	1	Rinse, Retaining, Rinse Head Bushing	05340-112-01-11
4	1	Washer, Rinse Arm	05330-011-42-10
	1	O-Ring (Not Shown)	05330-002-60-69
5	1	Rinse Arm	05700-031-38-30
6	2	Plug, Rinse Arm	04730-609-04-00

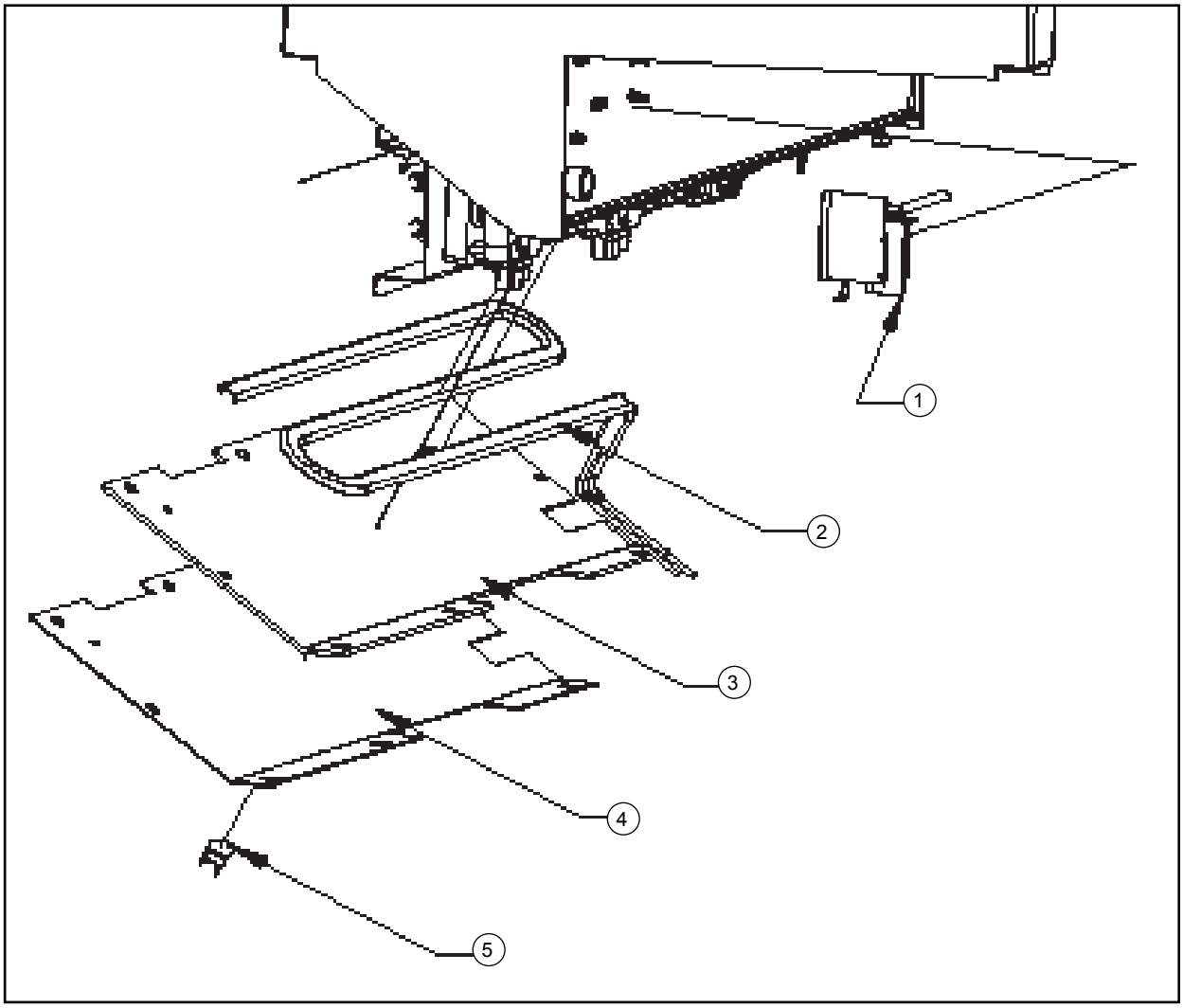
HT THERMOSTAT & RINSE TANK ASSEMBLY

COMPLETE RINSE TANK ASSEMBLY
(Avenger HT 208-230V)
05700-003-31-94

COMPLETE RINSE TANK ASSEMBLY
(Avenger HT 480V)
05700-003-37-78

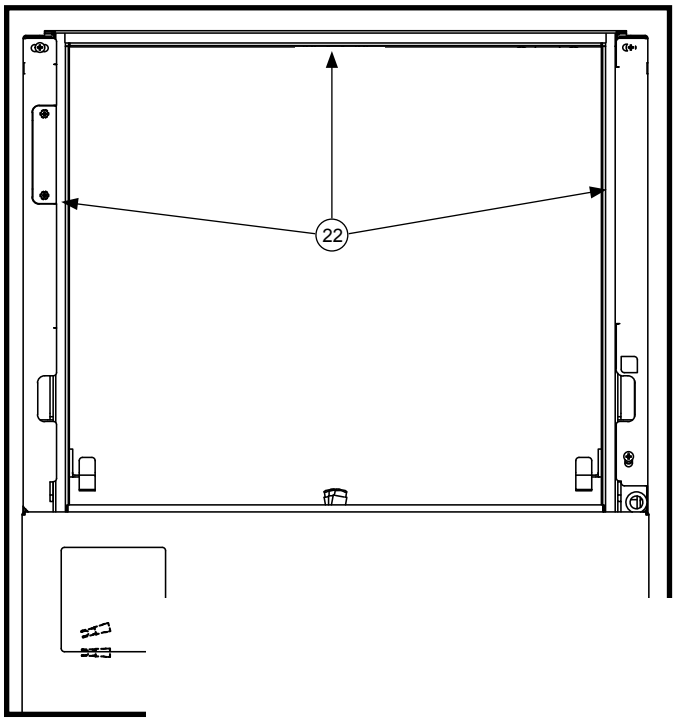


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Thermostat	05930-003-06-48
2	1	Rinse Tank Weldment	05700-003-31-95
3	1	Fitting, 1/4" Imperial Brass	05310-924-02-05
4	1	208-230 Volt Heater	04540-111-43-21
	1	480 Volt Heater	04540-002-29-82
5	4	Lock Washer, 5 /16" Split	05311-275-01-00
6	4	Nut, 5 /16"-18 S/S Hex	05310-275-01-00
7	1	Gasket, Heater	05330-011-47-79
8	9	Locknut, 1 /4"-20 S/S Hex with Nylon Insert	05310-374-01-00
9	1	Dielectric Cover	05700-001-40-50

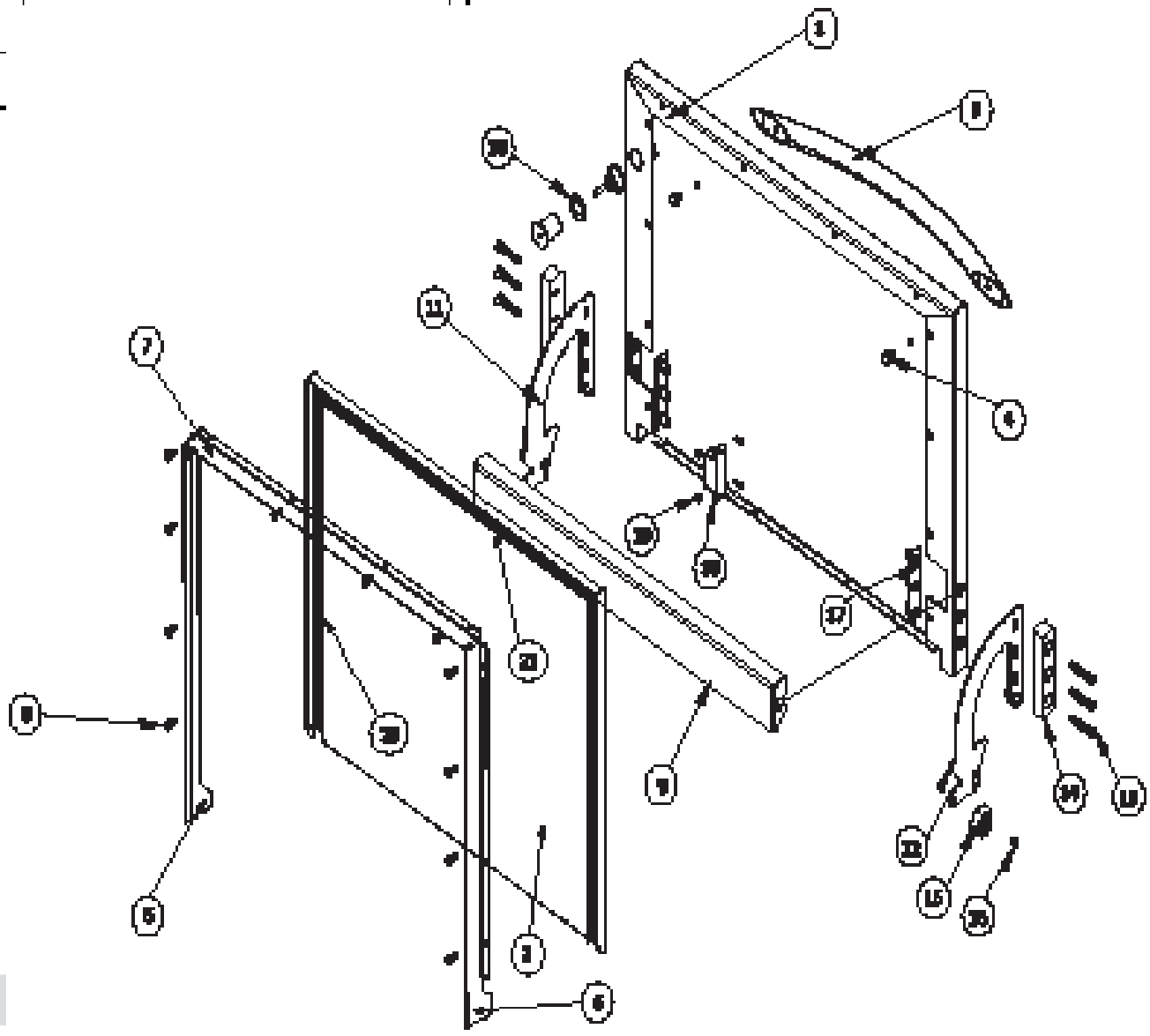


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Wash Thermostat	05930-003-13-65
2	1	Heater, Fire Bar	04540-003-46-27
3	1	Insulation Paper 1 /8"	04540-003-46-30
4	1	Heater Cover Plate	05700-003-46-37
5	1	High Limit Thermostat	06685-003-46-77

AVENGER DOOR ASSEMBLY



OPEN DOOR VIEW OF MACHINE



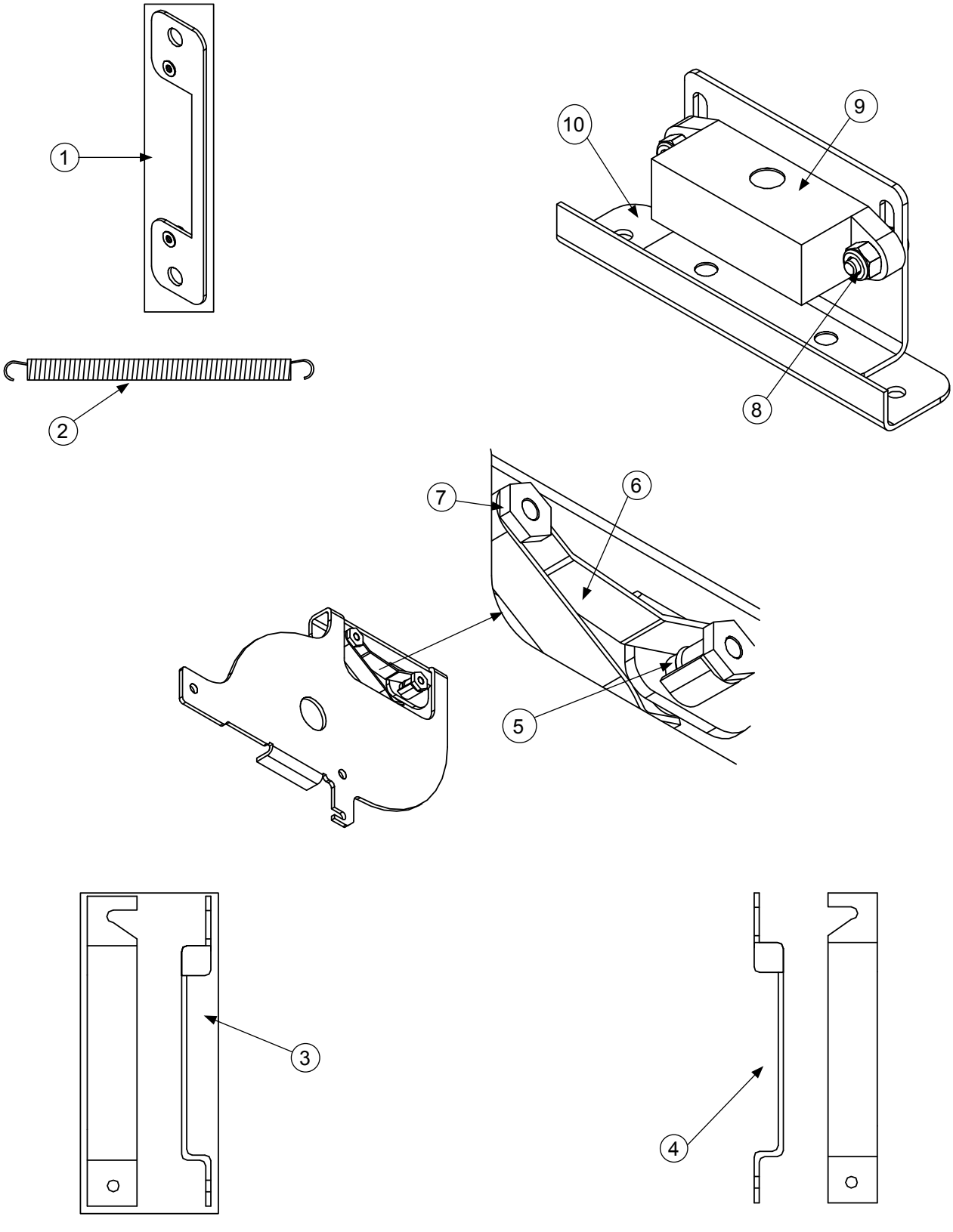
AVENGER DOOR ASSEMBLY

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Outer Door Weldment	05700-003-33-37
2	1	Inner Door Weldment	05700-003-33-21
3	1	Door Handle	05700-003-26-62
4	2	Bolt, 1/4”-20 X 3/8” Long	05305-274-20-00
5	1	Channel, Right Seal	05700-003-33-19
6	1	Channel, Left Deal	05700-003-33-20
7	1	Channel, Top Seal	05700-003-33-22
8	12	Screw, 10-32 X 1/2” Pan Phillips Head	05305-011-44-52
9	1	Baffle, Door	05700-003-33-38
10	1	Start Switch Assembly	05700-003-34-80
11	1	Hinge, Right Weldment	05700-003-32-72
12	1	Hinge, Left Weldment	05700-003-32-71
13	6	Screw, 1/4”-20 X 1-1/2” Pan Phillips Head	05305-011-44-50
14	2	Hinge Spacer	05700-003-33-42
15	2	Stop, Door Hinge	05700-003-32-55
16	2	Screw, Number 10 Pan Head 18-8 S/S X 1/2”	05305-173-01-00
17	2	Retaining Plate Assembly	05700-011-44-37
18	1	Magnet, Reed Switch	05930-002-68-53
19	2	Lock Nut, 6-32 S/S Hex W/ Nylon Insert	05310-373-03-00
20	2	Gasket, Door 17 1/8"	05330-003-58-36
21	1	Gasket, Door 20"	05330-003-58-35
22	4ft*	Seal, Door Silicone	05330-004-14-08

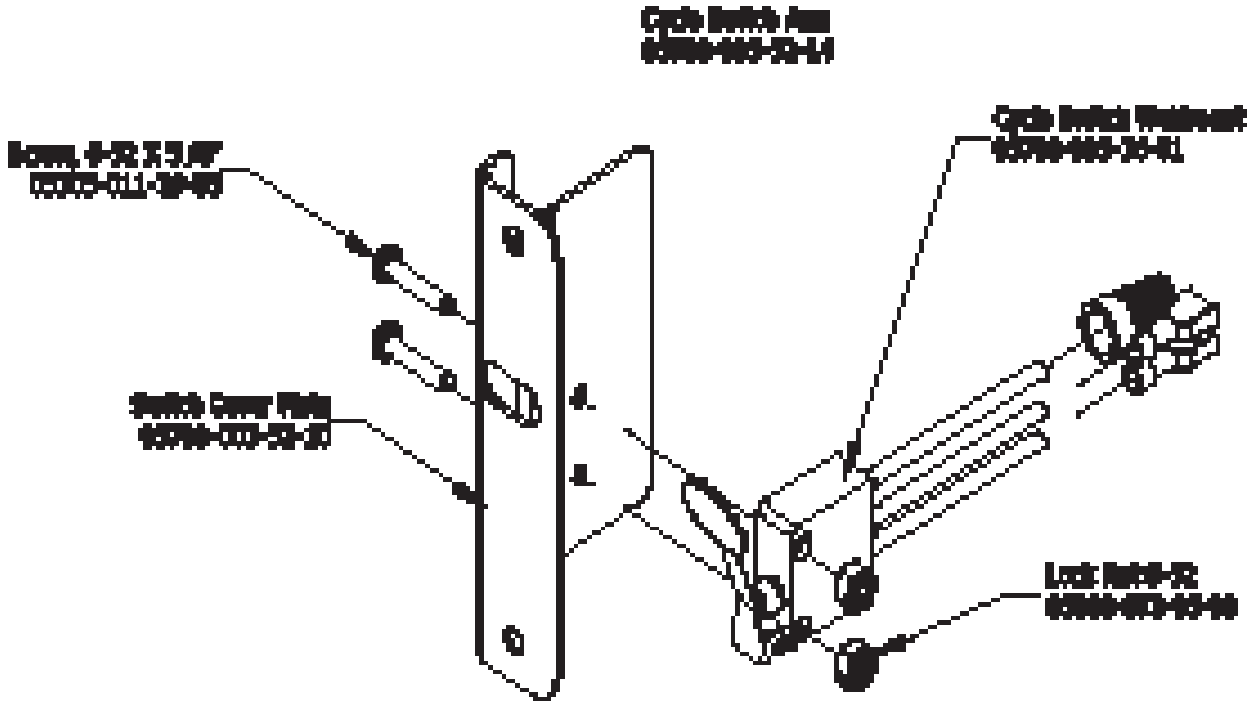
***Note: Item #22 is Raw Material cut to size:**

Top - 20"
Sides - 21"

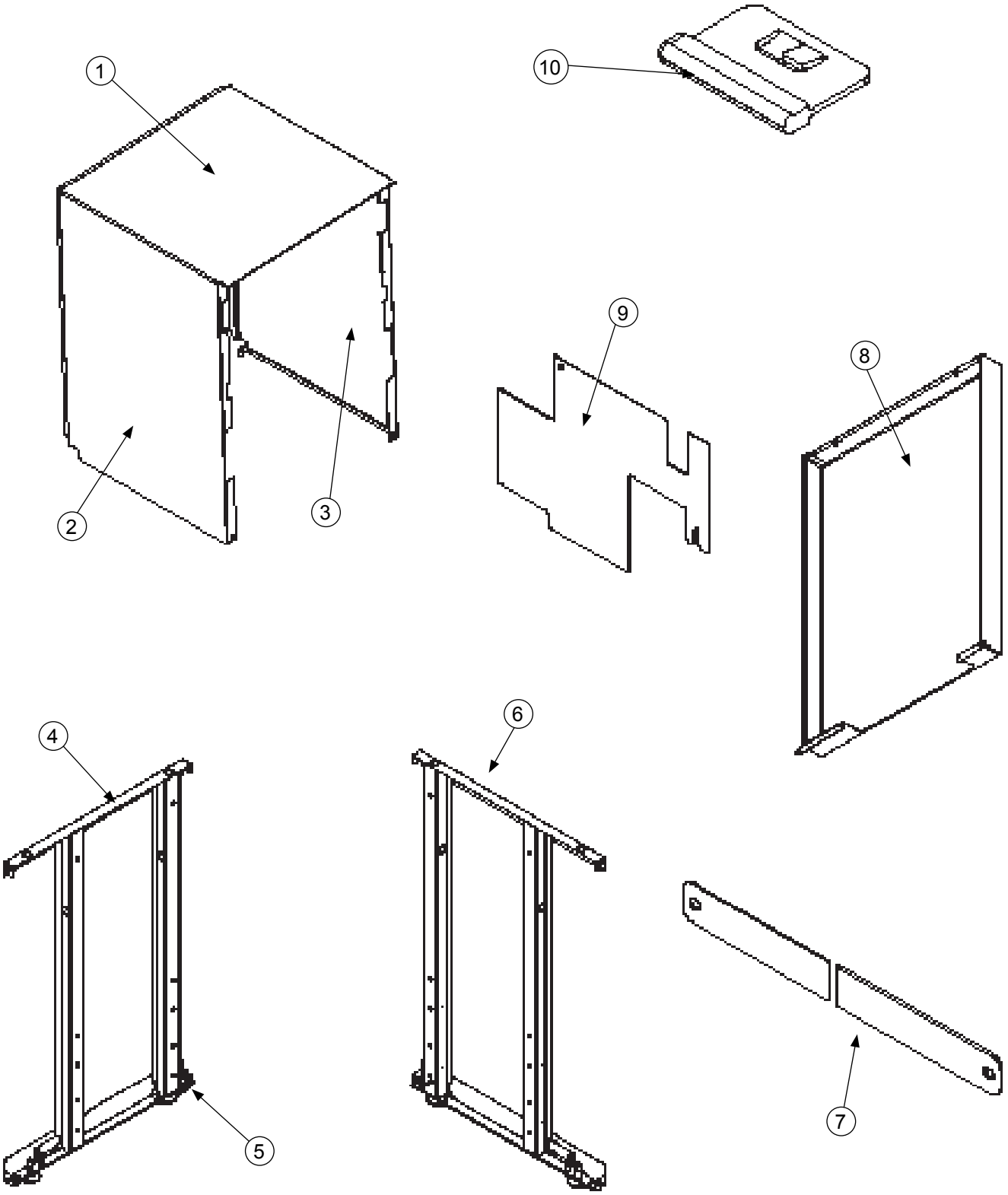
MISCELLANEOUS DOOR COMPONENTS



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Switch Mounting Plate Assembly	05700-003-33-54
2	1	Door Spring	05700-003-32-85
3	1	Cover, Left Hinge Weldment	05700-002-18-41
4	1	Cover, Right Hinge Weldment	05700-002-18-42
		Hinge Components secured with: Locknut, 1/4”-20 S/S Hex with Nylon Insert	05310-374-01-00
5	2	O-Ring	05330-003-32-34
6	1	Latch Spring	05700-003-32-32
7	2	Latch Nut	05700-003-32-33
8	2	Hardware: Locknut, 6-32 S/S Hex with Nylon Insert	05310-373-03-00
	2	Screw, 6-32 X 1/4” Flat Head	05305-171-01-00
9	1	Door Switch	05930-003-31-44
10	1	Door Switch Bracket	05700-003-31-43
		Door Switch & Bracket Assembly	05700-003-32-21

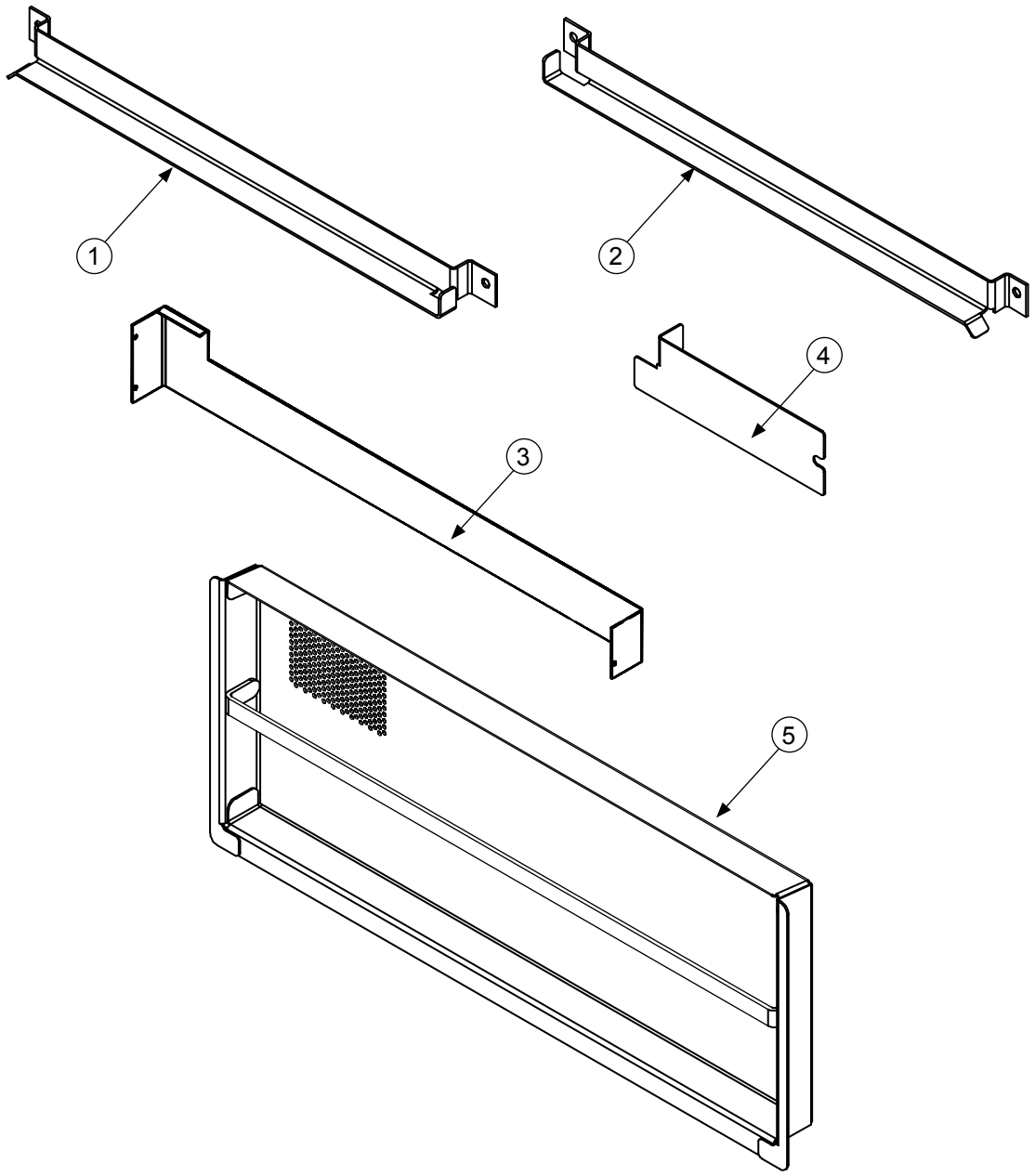


FRAME AND PANEL COMPONENTS



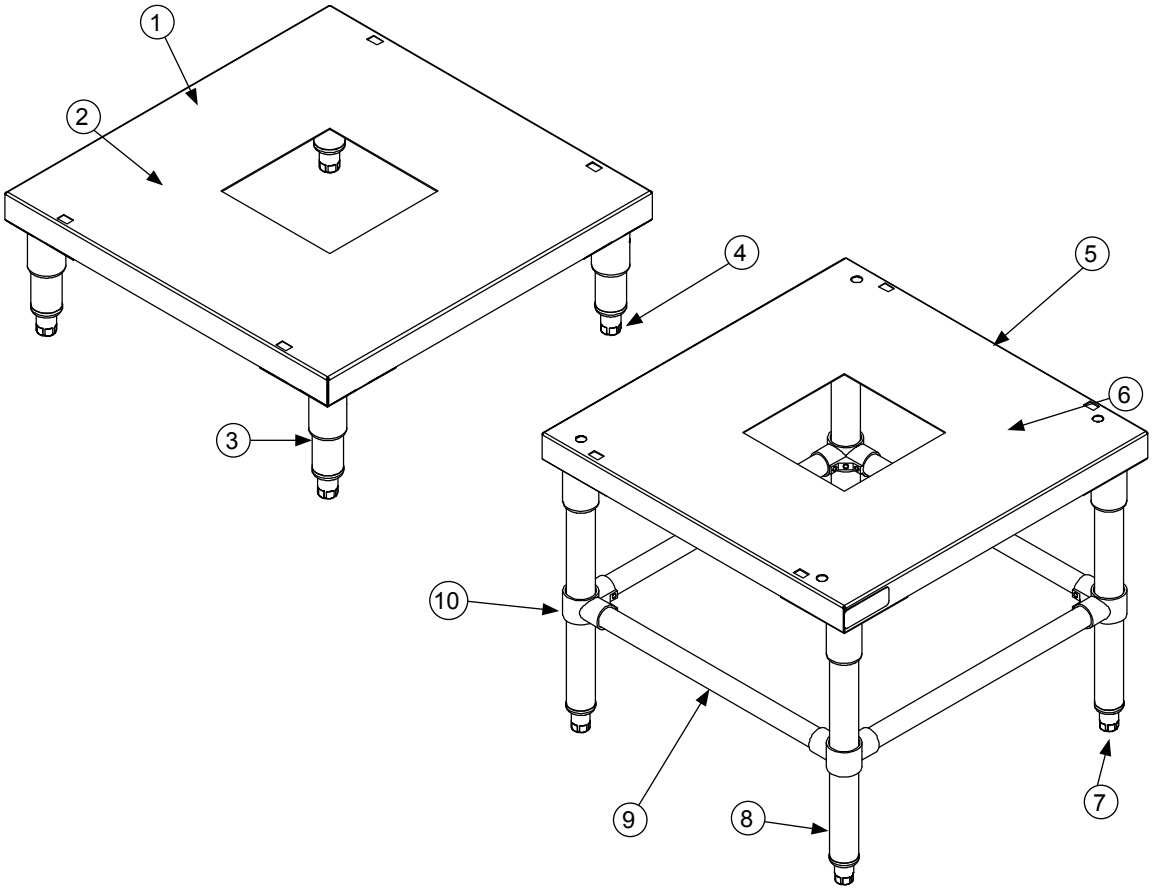
FRAME AND PANEL COMPONENTS

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Top Shroud Weldment	05700-003-37-06
2	1	Left Shroud Weldment	05700-003-37-04
3	1	Right Shroud Weldment	05700-003-37-05
4	1	Left Frame Weldment	05700-003-31-91
5	1	Swivel Feet	05340-108-02-00
6	1	Right Frame Weldment	05700-003-31-90
	4	Hardware: Nut, 1/4”-20 Serrated Hex	05310-959-03-00
	4	Nut, 5/16”-18 Cad Spine	05310-959-03-00
7	2	Bottom Strap	05700-003-92-20
8	1	Optional Back Panel	05700-003-33-55
9	1	Standard Back Panel	05700-003-36-35
10	2	Shroud Plug	05700-003-32-50



ITEM	QTY	DESCRIPTION	PART NUMBER
		Components secured with: Locknut, 1/4”-20 S/S Hex with Nylon Insert	05310-374-01-00
1	1	Rail, Left Rack	05700-031-37-88
2	1	Rail, Right Rack	05700-031-37-88
3	1	Splash Shield	05700-003-33-51
4	1	Strainer Spacer	05700-001-35-83
		Attaches with: Nut, Nylon Wing, 1/4”-20	05310-994-01-00
5	1	Strainer Weldment	05700-003-32-81

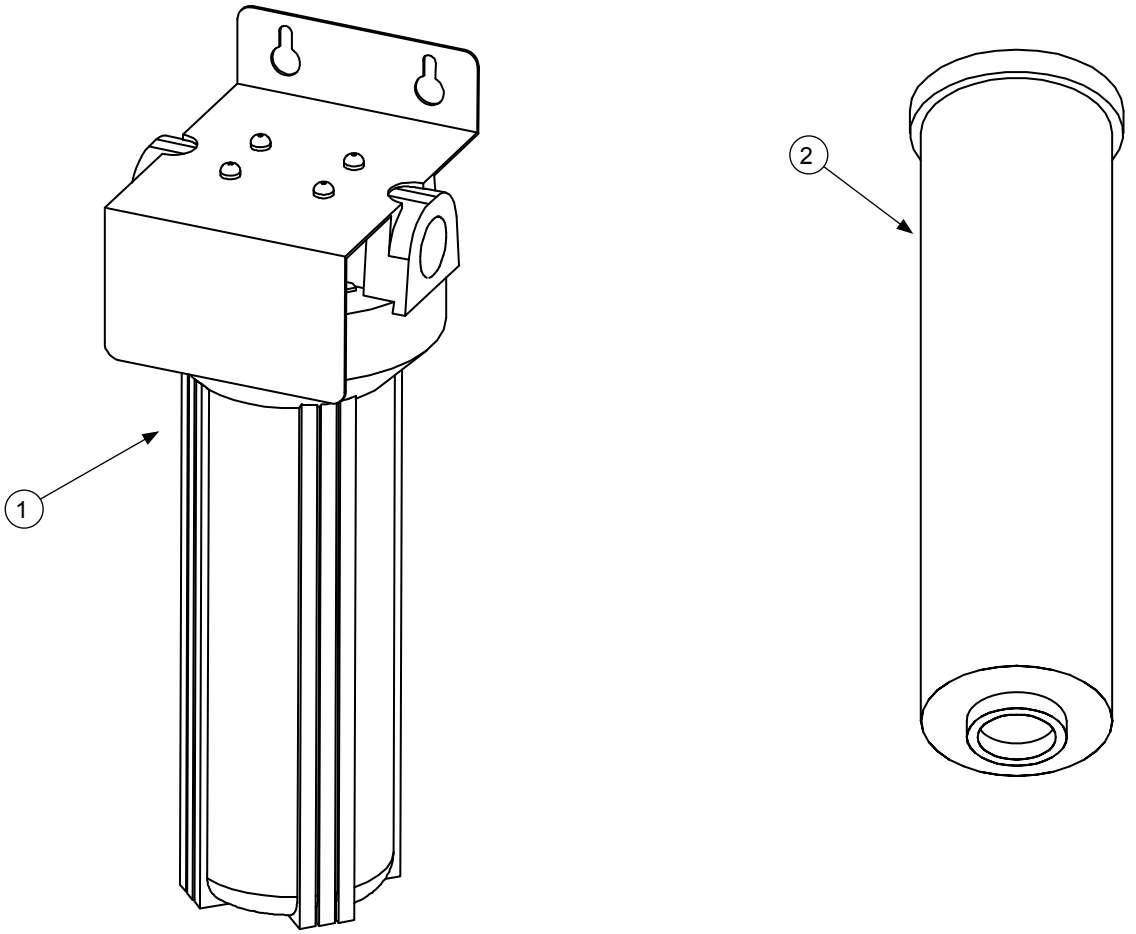
INSTALLATION INSTRUCTIONS: To install the stand, first remove the adjustable feet from the machine. Place machine on table and use the square mounting holes to line up the machine. Re-insert the adjustable feet through bottom of table top and tighten to lock machine to table.



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	6” Stand Assembly	05700-003-34-24
2	1	Stand	05700-002-88-82
3	4	6” Leg	05700-021-61-10
4	4	Bullet Foot	05340-108-01-03
5	1	18” Stand Assembly	05700-003-34-25
6	1	Stand	05700-002-88-82
7	4	Bullet Foot	05340-108-01-03
8	4	18” Leg	05700-002-89-47
9	4	Cross Brace	05700-003-25-90
10	4	Cross Member Bracket	04730-003-25-89

HTS-11 (SCALE PREVENTION & CORROSION DEVICE)

INSTALLATION INSTRUCTIONS: Must be installed vertically. The provided bracket is to be secured to the wall. Observe proper inlet/outlet water directions. Flow directions are molded into the top of the head. Line pressure should be released prior to changing cartridges. De-liming of equipment prior to installation is recommended but no required.



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Kleeneware HTS-11 System	04730-003-28-03
2	1	Replacement Cartridge (Inspect at least every 6 months)	04730-003-28-04
		Replacement Test Strip (not shown)	06401-003-28-06

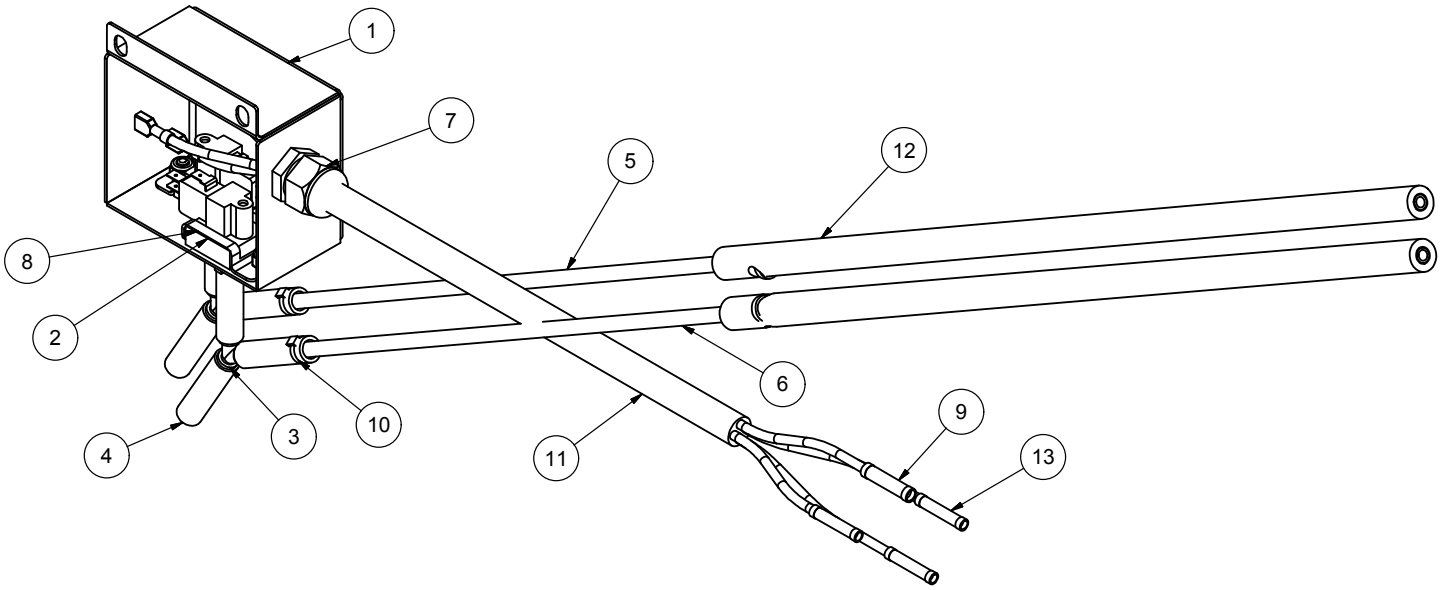
GO BOX KIT

A GO Box is a kit of the most needed parts for a particular model or model family to successfully effect a repair in the first call 90% or more of the time.

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Rinse Thermostat	05930-003-06-48
2	1	Contactor/Heater	05945-002-74-20
3	1	Pump Seat	05330-002-34-22
4	1	Pump Gasket O-Ring	05330-002-81-83
5	1	Door Switch (Reed)	05930-003-31-44
6	1	Relay, 220-240-Volt	05945-111-89-75
7	1	Relay, 115 Volt	05945-002-47-41
8	2	Switch, Det/Rinse Aid Prime	05930-011-49-54
9	2	Switch, On/Off	05930-301-49-00
10	2	Switch, Auto/Manual	05930-011-49-55
11	1	Fill Solenoid Valve 1/2”	04810-100-09-18
12	1	Vacuum Breaker	04820-003-06-13
13	1	Timer, Universal	05945-003-33-09
14	4	Washer Rinse Arm	05330-011-42-10
15	2	Ring, Retaining	05340-112-01-11
16	2	Bearing Assembly, Wash Arm	05700-021-35-97
17	2	Squeeze Tube, 3/16”	05700-111-35-29
18	2	Squeeze Tube	05700-011-76-41
19*	1	Pump & Motor Assembly	06105-002-72-75

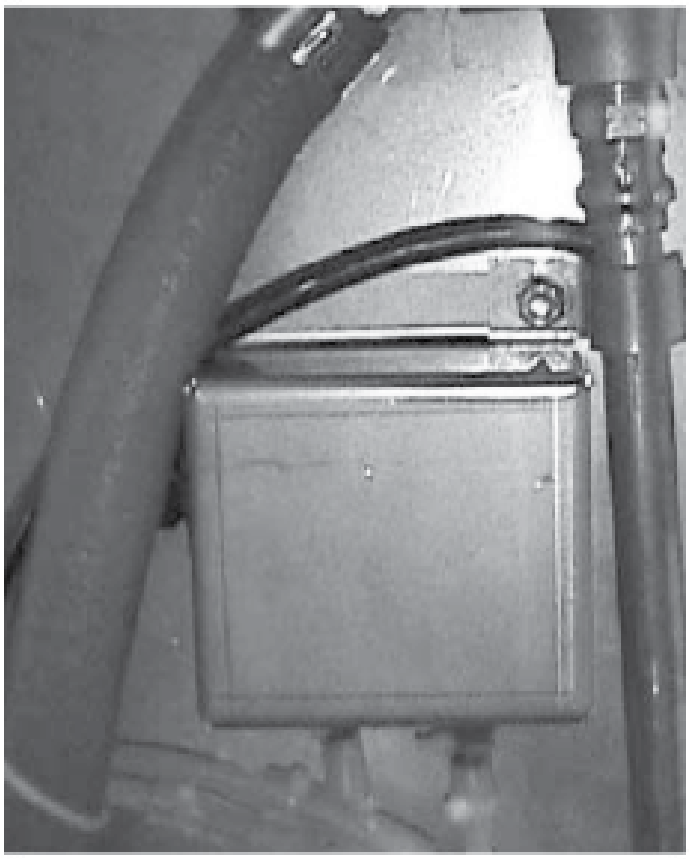
* Special pricing when purchased with a GO BOX. Call for details.

VACUUM SWITCH ASSEMBLY



ITEM	QTY	DESCRIPTION	PART NUMBER
		Complete Assembly	05700-003-55-98
1	1	Box, Vacuum Switch	05700-003-55-96
2	2	Switch, Vacuum	05700-003-36-13
3	2	Wye, 1/4” Barbed PVDF	04730-003-36-14
4	6	Tubing, Clear 5/16 ID	04710-003-53-26
5	1	A-Tube, Red 1/4 OD X 100 Long	05700-003-03-45
6	1	A-Tube, White 1/4 OD X 100 Long	05700-003-03-45
7	1	Fitting, Liquidtite .231 X .394 Heyco	05700-003-20-67
8	2	F-Pressure Switch Bracket	05700-003-53-03
9	2	Spice, Blue Butt	5940-200-11-44
10	6	Locknut, 10-24 X 3/8 Phillips Truss	05945-602-01-16
11	14	A-Cable, 18 GA/5 Con 46”	35597
12	3	Tube Stiffener	05700-002-66-49
13	2	Splice, Red Butt	05940-200-26-00

VACUUM SWITCH ASSEMBLY INSTALLATION



Back of machine showing use of existing mounting hardware for installation of vacuum switch assembly.

Remove locknut on plumbing support bracket and mount switch box over existing stud. Reinstall bracket and route red and white tubes behind blue hose as shown.

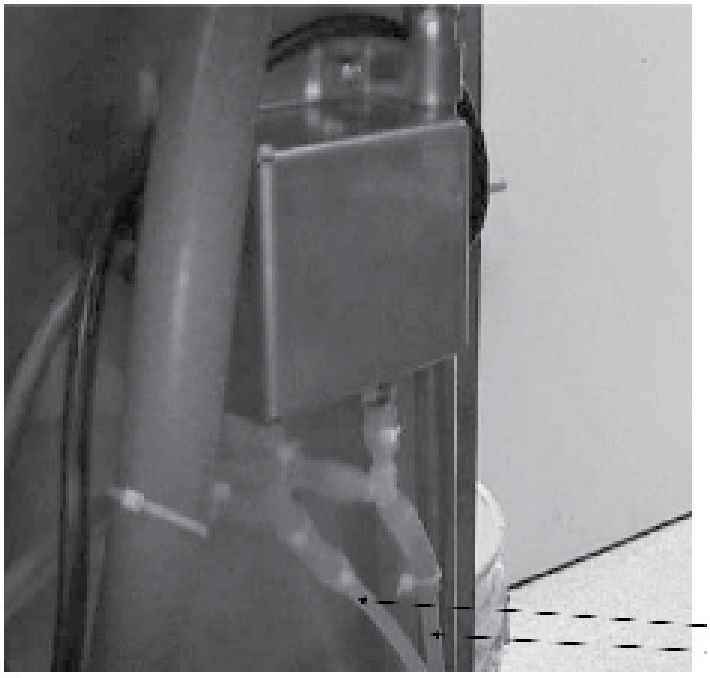
Route gray cable down back and under the tub along inlet plumbing, remove wires from existing pressure switches and connect to gray cable per note below.

Detergent Switch (Red Tube)

1. Connect black wire from gray cable to black/yellow wire from switch.
2. Connect brown wire from gray cable to blue wire from switch.

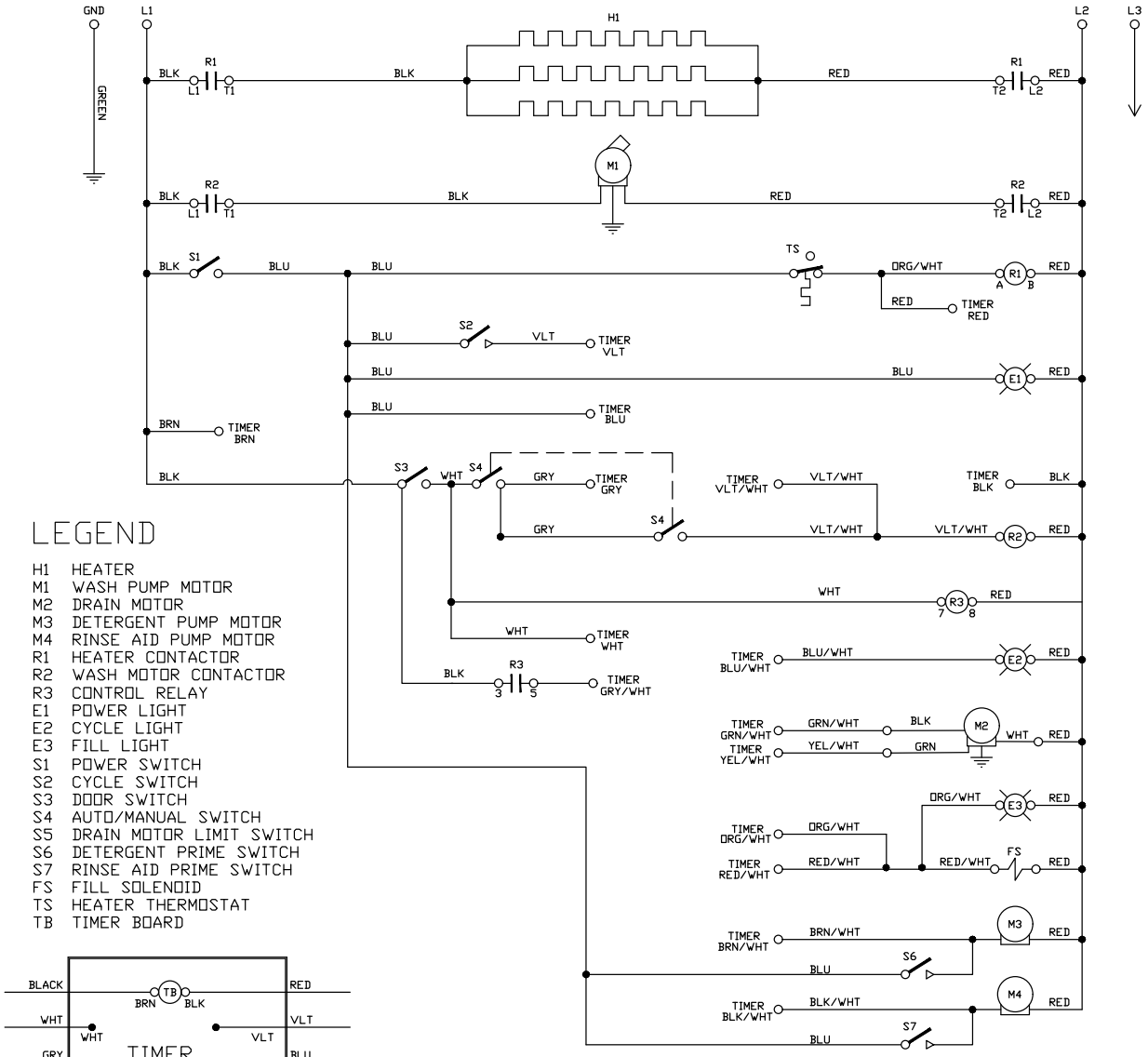
Sanitizer Switch (White Tube)

1. Connect white wire from gray cable to white/yellow wire from switch.
2. Connect red wire from gray cable to blue wire from switch.



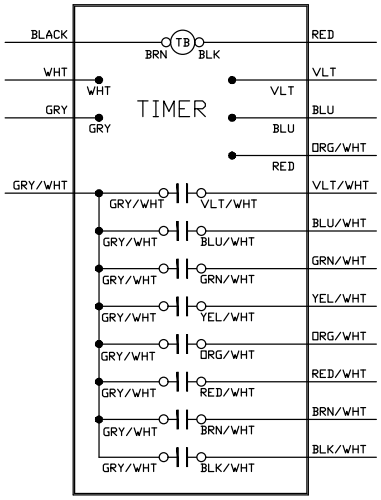
After cutting the existing red & white tube approximately 12” above the gray tube stiffener, insert the cut ends into the clear tubes as shown.

AVENGER HT
208-230 VOLT-60 HZ-SINGLE PHASE

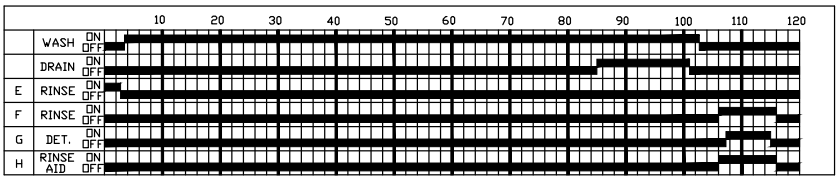


LEGEND

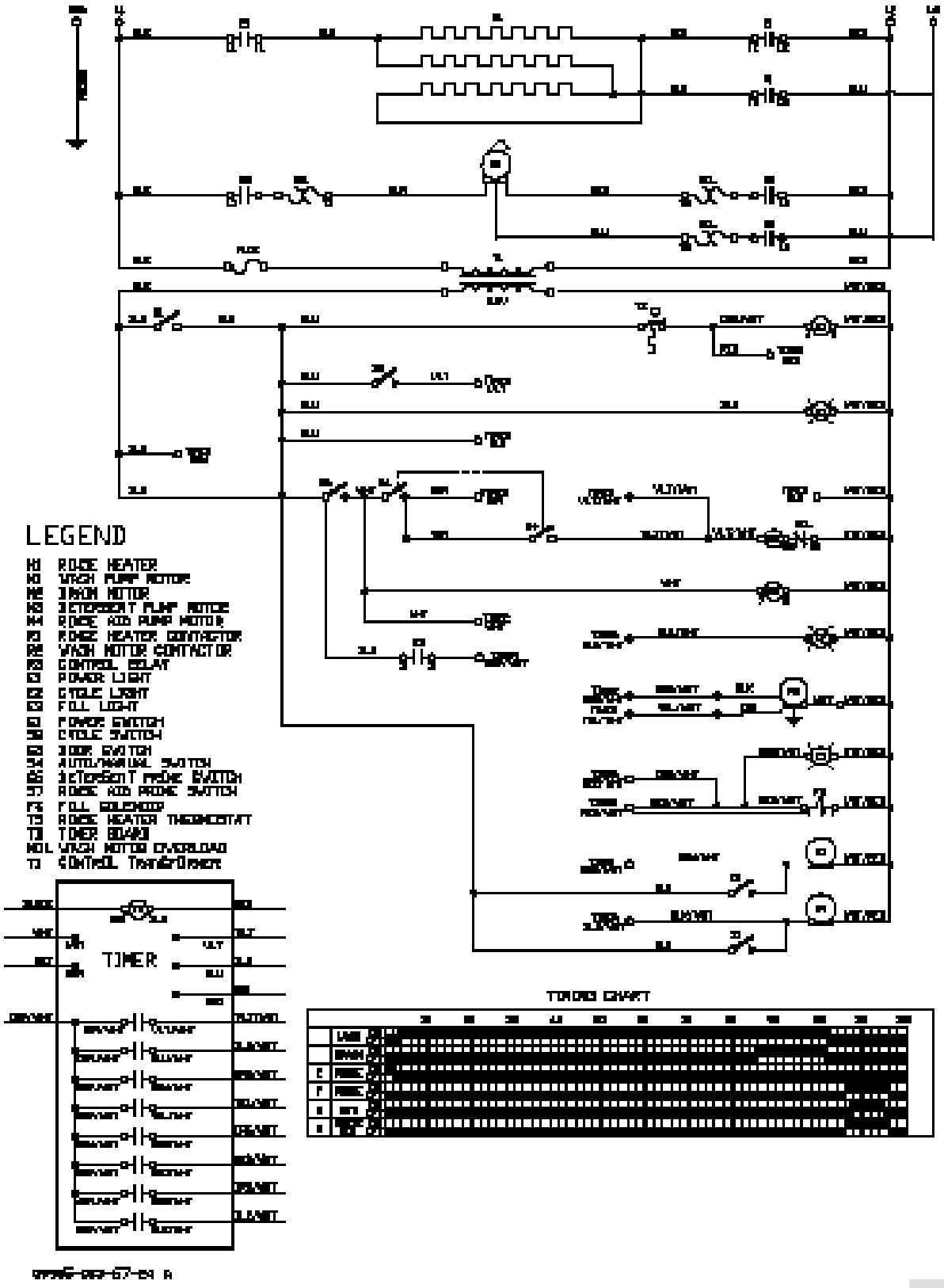
H1 HEATER
M1 WASH PUMP MOTOR
M2 DRAIN MOTOR
M3 DETERGENT PUMP MOTOR
M4 RINSE AID PUMP MOTOR
R1 HEATER CONTACTOR
R2 WASH MOTOR CONTACTOR
R3 CONTROL RELAY
E1 POWER LIGHT
E2 CYCLE LIGHT
E3 FILL LIGHT
S1 POWER SWITCH
S2 CYCLE SWITCH
S3 DOOR SWITCH
S4 AUTO/MANUAL SWITCH
S5 DRAIN MOTOR LIMIT SWITCH
S6 DETERGENT PRIME SWITCH
S7 RINSE AID PRIME SWITCH
FS FILL SOLENOID
TS HEATER THERMOSTAT
TB TIMER BOARD



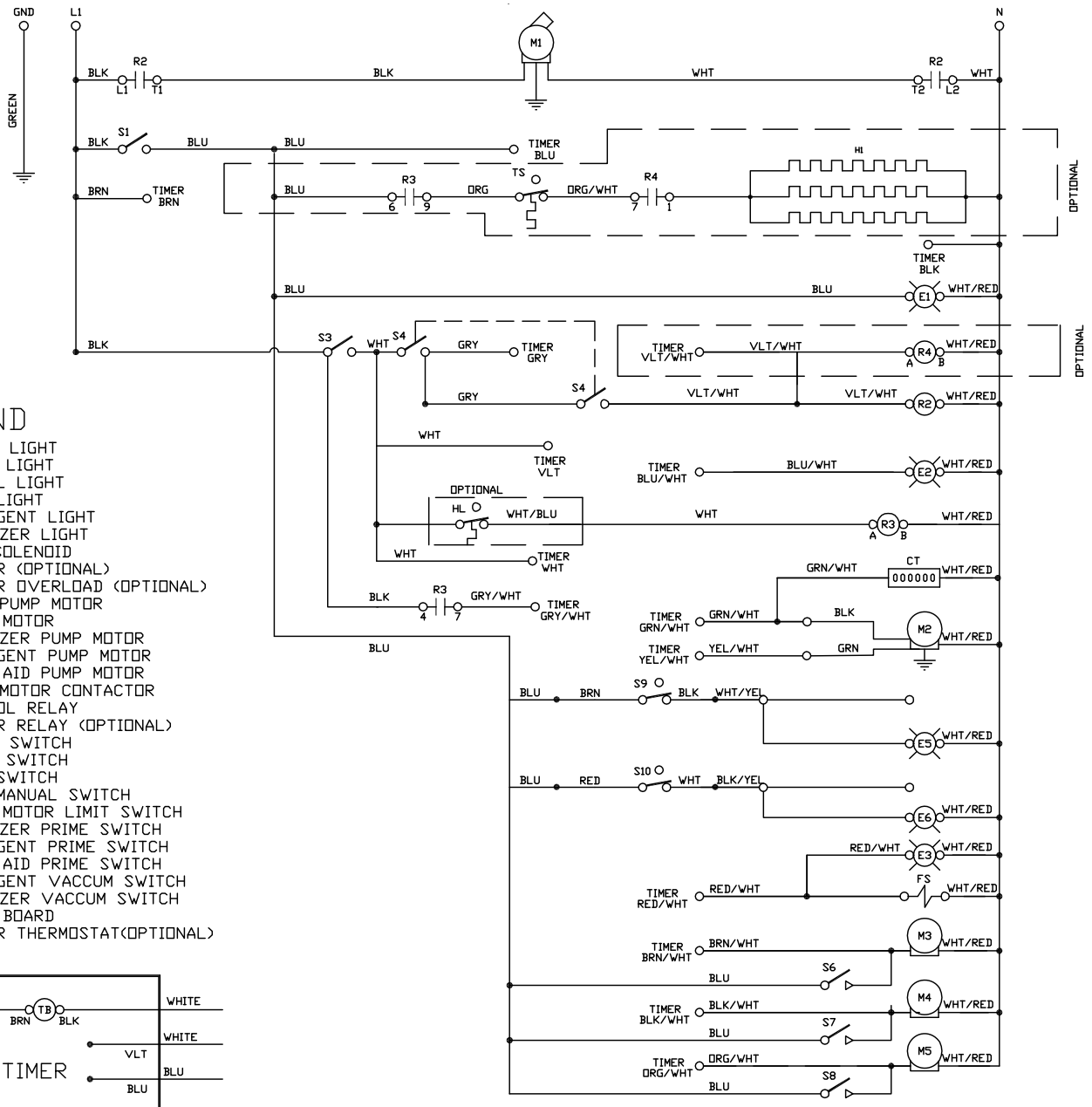
TIMING CHART



09905-003-67-25 C

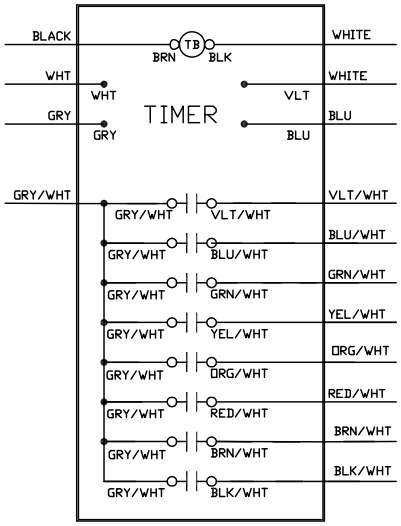

LEGEND
TIMER
TIMING CHART

AVENGER LT
115 VOLT-60 HZ-SINGLE PHASE

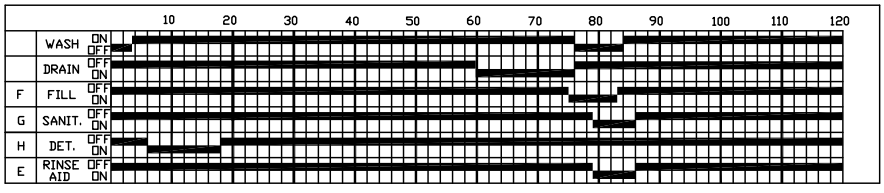


LEGEND

E1 POWER LIGHT
E2 CYCLE LIGHT
E3 MANUAL LIGHT
E4 AUTO LIGHT
E5 DETERGENT LIGHT
E6 SANITIZER LIGHT
FS FILL SOLENOID
H1 HEATER (OPTIONAL)
HL HEATER OVERLOAD (OPTIONAL)
M1 WASH PUMP MOTOR
M2 DRAIN MOTOR
M3 SANITIZER PUMP MOTOR
M4 DETERGENT PUMP MOTOR
M5 RINSE AID PUMP MOTOR
R2 WASH MOTOR CONTACTOR
R3 CONTROL RELAY
R4 HEATER RELAY (OPTIONAL)
S1 POWER SWITCH
S2 CYCLE SWITCH
S3 DOOR SWITCH
S4 AUTO/MANUAL SWITCH
S5 DRAIN MOTOR LIMIT SWITCH
S6 SANITIZER PRIME SWITCH
S7 DETERGENT PRIME SWITCH
S8 RINSE AID PRIME SWITCH
S9 DETERGENT VACCUM SWITCH
S10 SANITIZER VACCUM SWITCH
TB TIMER BOARD
TS HEATER THERMOSTAT(OPTIONAL)



TIMING CHART



Jackson
Warewashing Systems

Jackson WWS, Inc. • 6209 N. US Hwy 25E • Gray, KY 40734 USA
1.888.800.5672 • www.jacksonwws.com